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Yours Affectionately
Nehemiah Grant

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THE NEW WAY TO NET PROFITS

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By

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WITH FOREWORD BY

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FOREWORD

BY DONALDSON BROWN

Vice-President, General Motors Corporation

FORECASTING and planning are the essence of modern-day business management and are vital to industrial prosperity. They are not the functions of an individual or a department; they are the conscious, coöperative work of an organization. The American manufacturer can no longer determine his course according to his ability to purchase the necessary raw materials and the capacity of his manufacturing facilities. No longer may he rest assured that there will be buyers for his products so long as he can manufacture them with reasonable cost efficiency, and barring a general business depression. Competition is keen and the cost of manufacture is not the only factor determining the success of the manufacturer. Efficient employment of capital is a consideration of great importance, and a sound economical method of distribution, adapted to the particular circumstances, is essential. In the final analysis the ultimate consumer, with a wide range of choice usually afforded by

a number of ingenious contenders, will exercise his preference on the basis of the appeal which a particular product has for him.

Forecasting and planning are nothing more or less than a system of control whereby production, purchase of materials, and the employment of capital are coördinated with sales requirements. Budgetary control is an apt phrase except that it is likely to imply a rigidity that must be guarded against. Flexibility is a prime requisite so that there may be a quick response, and thus the possibility of adjustment throughout the system to the requirements of changes of situation that are inevitable. The focal point of the system is the sales outlet. The flow at this point must be gauged, and every other activity must be coördinated with it.

Ultimate consumer demand is the fundamental factor absolutely controlling the continued sale of any product. This is not the demand of the manufacturer who buys from some other producer, but that of the user of the final and completed product. Some types of business are more fortunately situated than others as to the opportunity of analyzing the ultimate consumer demand for their products. Those that are producing and selling products which represent a preliminary stage in the manufacture of a final

product that in course of time finds its way into the hands of the ultimate user, are far removed from such an opportunity. They are none the less dependent upon the requirements of the final consumer; and it is poor solace to place the responsibility elsewhere, when an unrecognized state of demand results in a decrease in sales and an enforced curtailment of production.

When I speak of production being regulated to fit the demands of the ultimate consumer, I do not mean merely the *quantity* of goods to be produced. In many lines of business it is even more important to consider the elements of utility and style. This is an age of invention and improvement and we deal with a fastidious public, which, after all, is one of the basic causes of our industrial progress. Thus what might appear from statistical indications of past consumption to foretell a continuing demand for a given product, may be altered overnight, so to speak, by a change of public taste and preference for some substitute or improved article.

We should continually strive to obtain a better knowledge of the fundamental circumstances surrounding our individual businesses. To the extent that facts are revealed and used in determining the course of business management, errors of judgment are automatically eliminated. Cumu-

lative forces will be directed toward the stabilization of business as a whole in the degree that the essential factors of management, based upon revealed facts, are coördinated within our individual businesses.

A theoretically perfect coördination of business comprehends an exact knowledge, in advance, of what the public wants (within the limits, of course, of human ability to supply); an exact knowledge of *how much* the public wants (within the limits of human ability to purchase and consume); and a regulation of production in accordance to fit these ultimate consumer demands for both kind and quantity of goods.

The attainment of such an ideal involves means of determining demand, and of adjusting supply to fit it. The economic problem involved can be illustrated for any industry by the simple analogy of a large river flowing into the ocean, and having numerous branches or tributaries. The ocean represents consumer demand as a whole; the river represents the flow of manufacture of the particular products that we may have in mind; and the tributaries or branches represent the flow of requirements from contributory suppliers at various stages removed from the main product. The rate of discharge of this river of products into the sea of demand is limited, on the one

hand, by the rate of flow of the tributary branches and streams into it, and on the other hand by the smoothness, width, and depth of the channel and the conditions at the mouth of the river. If the tributaries and feeder streams of this river supply less water than the main channel and mouth can take care of, we have the condition of demand exceeding supply. If these feeders and tributaries, on the other hand, discharge more water than can be passed through the mouth of the main river, we shall have a backing up and flooding, first of the adjacent lowlands, and eventually of the valleys of the tributaries. This is analogous to the piling up of inventories experienced in periods when supply exceeds demand. Ideal conditions for the flow of such a river of industry call for the operation of two distinct activities or influences incident to what we may call flood or volume control. We want our river, of course, to discharge as much volume of product into the sea of demand as is continually possible—therefore, one set of activities has to do with the deepening and smoothing of the main channel and the removal of obstructions and bars at the mouth where it empties into the sea. This pictures the continued improvement of our product in its consumer appeal through style or design betterments, cost and price reductions which en-

large the market, better advertising and merchandising efforts, etc. The second set of activities has to do with maintaining an even flow of water in our river without any shortages and floods. This requires a constant checking of conditions at the mouth of the river to determine the proper rate of flow, and a means of controlling the flow of volume in the upper reaches and the tributaries in accordance with existing conditions at the mouth.

The ideal way of regulating production through forecasting and planning is upon the basis of gauging and checking ultimate consumer demand.

Forecasts are not to be derived solely from statistical observations. The constructive aspect is no less important in a measurement of probabilities.

Going back to our analogy of the river emptying into the ocean, the constructive part of forecasting and planning consists in deepening the channel and improving the mouth of the river so as to facilitate a maximum practical and sustainable flow. The statistical phase of forecasting lies in the continual sounding of this channel and the regulating of the flow of main stream and tributaries to accord with conditions as found and as made.

The constructive efforts in forecasting and plan-

ning take on, in turn, two aspects which I may call, respectively, "long-term" and "short-term" factors of influence. Both of these are designed favorably to affect the consumer demand for our products.

Among the long-term factors of influence on consumer demand may be mentioned the extensive program of research that is maintained by some businesses in order to increase the consumer appeal of their products through improvements in design, functioning serviceability, style, etc. I call these "long-term" factors because from their nature they require a continuing program of some duration before their influence can make itself felt on consumer demand. The ultimate effect of these factors, which include a continuing study of product obsolescence, is of utmost importance upon consumer demand and must be taken into account in constructive forecasting. Unlike the short-term factors, however, they cannot be called into play quickly to offset cessations in demand due to sudden and unforeseen depressions, characteristic of the minor fluctuations of the business cycle.

In connection with these long-term factors of influence, the engineering and sales departments work hand in hand. The engineers are, of course, ahead of the salesmen, from the stand-

point of time, in the development of improvements calculated to anticipate as yet undeveloped consumer needs and wants. The sales department, however, through its intimate, first-hand contact with the consumers, is in the best position to appraise the present worth of projected improvements in terms of consumer reaction to them.

Particularly in the matter of style trends is the sales department able to bring to bear an adequate sense of consumer requirements. In the automobile industry, for example, engineering research could not anticipate the sudden trend toward the closed car that took place some years ago. The sales department, however, quickly sensed it. On the other hand, the development of balloon tires and four-wheel brakes, which had a tremendous influence on consumer demand, was chiefly an outcome of research and engineering development.

Short-term factors of influence on consumer demand are those that may quickly be called into play to offset unfavorable developments as they become apparent. Going back to the river again for illustration, while we keep dredges continually at work on a long-time program of channel deepening and widening, it may be necessary, on occasion, to send out a flying crew

with some sticks of dynamite to blow up a sudden obstruction. These explosives correspond to the use of special sales stimulus, more intensive advertising, or even temporary underpricing, whenever these seem called for by a falling off in anticipated and logical demand.

In General Motors we recognize and distinguish the benefits that come from the systematic measurement of consumer demand and those that result from forecasting and planning. Among the former, I may mention the considerable stabilization of employment in our factories in spite of seasonal fluctuations, and the marked stimulation in inventory turnover, both in our factories and among our dealers. In other words, the more consistent rate at which we are conducting operations has enabled us to manufacture and distribute a larger quantity of cars with a smaller amount of capital tied up in inventories. Moreover, it seems safe to assume that the inventory turnover of suppliers has also been favorably affected, since this has been the effect upon our own accessory and parts divisions.

Our forecasting and planning activities extend far beyond the forecasting of retail sales and the regulation of production to fit the demands of the ultimate consumer, and afford many benefits in the direction of control of our operations not

dependent solely upon the application of the consumption yardstick. The establishment of cost, expense, and investment standards, which is a part of our program, has not only made possible the establishment of standard prices with which actual or proposed prices may be compared, but it has also subjected the fundamental policies of the corporation to the test of actual experience. Increased accuracy in estimating, and a more thorough understanding of our fundamental policies by all concerned, have been noticeable results.

It is said that an ideal is something that you keep shooting at but never hit. Fortunately for human progress, we possess an overwhelming desire to keep on aiming and shooting at ideals, once they have manifested themselves; and there is reason to believe as well as to hope that some day American business and industry will approach the ideal of stabilization sufficiently to free us from the boggy of the business cycle. When this is brought about, it will be largely due, I am sure, to the closer and more economical control of manufacturing and merchandising operations that will follow a better appraisal of ultimate consumer demand. And intelligent forecasting and planning—vital to industrial prosperity—are the mechanism to bring this about and to remove the unnecessary hazards from the

course of American business. When this is accomplished the game may not be as exciting as it is to-day, but it will be played with greater peace of mind and result in greater prosperity.

PREFACE

THE subject here discussed is one of the most elusive which could be found in the whole range of human activity. Yet it touches life at so many vital points that it offers a striking challenge to organized clear thinking. For it is a fact that the production of goods necessary to daily life, and of importance to the happy existence of millions, occupies the brain and muscle of a majority of the ablest men now living. It is hopeless for any one man to expect to visualize clearly as a whole the vast realm of production and distribution, with all its color and form, all its human forces, its great volume, its delicate interdependence and constant kaleidoscopic change. However, in such a field, even a small contribution may have large implications. The prizes are great, because increased industrial efficiency means lower prices, higher wages, permanent dividends, and reserves available for research leading to the miracles of invention and consequent human satisfaction.

The review here presented of what may be regarded as the most complex mechanism ever developed by the human mind is offered with

great modesty. Its only excuse is that it represents the devoted work of many years, work done with absorbing interest to the author, and giving rise to a spirit of investigation and devotion far transcending every routine business impulse, and accompanied from time to time by tangible and continuing results in net profits to going concerns. These net profits have been represented in dollars; but they have also, it is hoped, been translated into results in many cases whose repercussions extend beyond dollars and into the realm of human happiness.

The subject is as big as life. It affords scope for the dreamer and for the hard-headed analyst. But as a science its immediate objective, as applied not to industry in the abstract, but to every man's business, must always be one thing, the ultimate excuse and inexorable test of business continuity—*net* profits. Whatever dreams of human happiness may serve to keep our banners flying as idealists, as builders of civilization, as business statesmen, we shall fail in the end if we do not build well and firmly the foundations of each individual unit of our industrial structure. This means that we must so organize as to make each year substantially more than we spend. Scientific administration in its ultimate analysis is the science of attaining and perpetuating net profits.

Once this basic tendency is accepted, it is appropriate to consider also that the rewards of successful scientific administration are commensurate with the sacrifice of time and human energy which it inevitably demands. If this study serves to lead others to explore more deeply these rich and fascinating regions, and if it brings to them the same satisfactions which the work has increasingly through the years brought to the author, he will be well repaid for the effort which it has cost him to build up this summary and approximation of his ideas and conclusions on a subject the last chapter of which will never be written as long as America is a vigorous and growing nation.

It has been the endeavor to tell the story of this system in simple language, with the hope of projecting clearly its primary principles and above all of revealing its genuine human interest.

He acknowledges gratefully his indebtedness to his many friends in manufacturing and merchandising enterprises throughout this country and Canada with whom he has discussed the problems of business and from whom he has learned much of a practical nature.

FRED W. SHIBLEY.

New York, June 15, 1928.

THE NEW WAY TO NET PROFITS

Chapter One

WHY THE NEW WAY WAS FOUND NECESSARY

THE new way to net profits can be described briefly as a system embracing an intelligently conceived plan of business administration, the object of which is to effect the most profitable result with the employment of the smallest amount of capital investment. The effectiveness of this system lies in the unification of the thought and effort applied in its application. Its master word is coördination.

It implies a fusing of knowledge relating to markets, merchandising, distribution, sales forecasting, production planning, control of all classes of expenses through a budget, research as applied to industrial and commercial problems, analysis, and policies of corporate management. It is not alone the specific understanding of one, or two, or three of these several functions of administration. It is a knowledge of all as one, and in this composite understanding is the power that produces the net profits desired.

In the description of this system the words "science" and "scientific" are used frequently.

It is recognized that the average business man reacts unfavorably to the employment of such words, for the reason that his conception of science is of a knowledge relating to philosophy, biology, zoölogy, and other kindred subjects having to do with the higher intelligence and which, in his opinion, is speculative rather than entirely practical. This is unfortunate but must be faced.

Science as applied to business differs in no way from the older sciences. It is simply knowledge based on facts which have been ascertained through experience, research, and analysis. As such it is the very essence of practicality. The word "science" is derived from the Greek word "scio"—to know. Certainly it is practical to know accurately.

Scientific administration, or the new way of doing business, contemplates an enterprise whose plan of operation has been thought through in every particular from the consumers of its products to the raw materials of which its products are made. Under previous systems of administration, business men thought in terms of raw materials converted into merchandise, sold and distributed to possible customers, whose tastes, buying habits, location, and ability to purchase were more or less unknown. In other words, the

thought, originating in production, flowed toward sales, markets being a secondary consideration. The present system, on the contrary, contemplates a business balanced and controlled by a carefully formulated plan which is based upon consumer demand. Its advocates state boldly that the true measures of industry in these present times are consumer purchasing capacity and consumer demand, not raw material supply or productive capacity.

This modern thought applies itself naturally to the solution of marketing problems, and from such application is coming an increasing appreciation of the importance of marketing which is fast being recognized as a basic and controlling element in the commercial structure.

The importance of a knowledge of markets and marketing conditions is obvious when it is realized that if the manufacturer could ascertain definitely how much of his products could be sold, when and where they could be distributed and at what prices, he could shape his production schedule to maximum advantage, minimize his inventory and labor turnover problems, and simplify his financial budget almost to accounting routine.

It is no reflection upon the business men of previous times that they devoted little thought

to an analytical study of markets and consumer psychology. The need did not exist in so compelling a way as at present. Without the impulse of necessity few men think deeply or observe keenly. Custom weaves inertia into a veil, clouding the mind.

It is interesting to review the chain of events which directly influenced the change in thought from the production viewpoint to that of merchandising and distribution.

The industries of the United States had grown steadily throughout the nineteenth century, forced somewhat rapidly by the requirements of a prosperous and virile people, in a land of apparently unlimited natural resources. Staple products were demanded, and this demand was persistent and insatiable. The nation seemed satisfied to purchase its luxuries and styled products in foreign countries, and a comparatively small amount of such products was required to meet the demands of wealth and fashion.

Business throughout the century at times experienced violent convulsions, as might be expected in a nation settling itself into an ordered condition.

The great captains of industry were railway builders, manufacturers, lumber kings, developers of mines, all seeking to produce something or

to build something to satisfy the growing needs of their countrymen. They did not think primarily in terms of markets. The railway projected itself into the wilderness. Markets followed it. Manufacturers constructed factories in full confidence that markets either existed or would appear for their products. Forests were slaughtered and sawn into lumber for which existed a constant demand. The copper miner's problem was not how to sell that metal but where to find it and how to separate it from its affinities.

Certain of the great pioneers of industry built or produced blindly in magnificent ignorance and in advance of the growth of the nation. Many of these plungers fell like giants, but on the whole the reward for courage and enterprise was constant and so substantial that, at the beginning of the present century, tremendous fortunes had been created by the master builders of American industry. Railway lines gridironed the country. By their side and along the several streams of the East, South, and Middle West factories stood in abundant supply.

In that century of remarkable achievement it should be noted particularly that when markets became temporarily congested with manufactured goods, the thoughts of producers turned to reduction in the cost of labor as a solution. Get

the labor costs down and the stream of distribution would flow normally once more, was the prevailing thought.

That most humanizing thought of modern times was not yet even a perception, namely, that the greatest profit from production and the broadest markets are created and sustained by paying labor the highest possible wage consistent with its efficiency and application. That thought was to develop from the study of mass production in the automobile industry, instigated by practical business logic and not by philanthropy.

With the beginning of the twentieth century that Gargantua of all products, the automobile, emerged and with it came into prominence a new breed of men, imaginative, courageous, efficient, tireless—creative geniuses.

These men blazed their own trail. They devised and planned their own systems of manufacturing procedure. Their key word was production. It was in this word that the boon to labor lay concealed like a good genie in a sealed jar.

They gave a particular significance to that wonderful word "efficiency," and for the first time people heard generally of time study, standard costs, factory routing, line production,

planned operation, high-powered selling—all satellites of mass production.

There is nothing in the story of mankind comparable with the automobile as an originator of scientific manufacturing practice, as a friend of labor, as a rewarder of executive ability, as a purveyor of happiness to human beings and a liberator of beasts of burden from incessant toil. It has revolutionized social and economic conditions. It has well earned the acclaim and the reward which has accompanied its progress.

The automotive industry increased manufacturing in a marked degree, both directly and indirectly, for the reason that its material and accessory requirements called for contributions from practically every other industry.

The World War further accentuated production in general. After the first intense shiver was over the realization came that there were not sufficient factories, railways, steamships, forests, and mines to fill the requirements of this monster. Feverish activity ensued in the creation of new and enlarged factory facilities which resulted in partially satisfying the demand. Bankers and manufacturers, however, continued to pile bricks and mortar upon bricks and mortar as if dominated by an irresistible urge. An insignificant number of wise men realized that another Tower

of Babel was being erected with an inevitable destiny of confusion. But the master workers saw nothing but their gigantic tasks and visualized nothing but their future reward.

When the armistice was signed, men in this country paused, wiped their brows, looked about them, and said fatalistically, "The war is over, now for its reaction," as an early tremor of the impending cataclysm shook the country. But this was merely a tremor, and business resurged with a new vigor, for men had a compelling vision—a hungry world to feed, a ragged world to clothe, and endless things for a nation of workers with capital to do. Industry boiled again and so continued until the latter part of 1920, when the real cataclysm came which, in a series of rapidly succeeding convulsions, shut down factories, tied up steamships, depopulated mines and forests, and slowed up commercial activities in general.

Now for the first time in almost a decade the captains of industry and even ordinary business men found opportunity for intense thought, the kind of thought which comes to troubled men as they lie awake during the dawn hours. They took account of stock and endeavored to size up their affairs.

Great mills and factories bore a forbidding

aspect as they stood closed and silent. The hammer lay where the workman had left it. The shuttle lay dead beside the loom. Warehouses were filled with raw materials, semi-finished or finished goods. Mill yards were piled with surplus raw material supplies, the iron and steel portions of which already were beginning to rust.

Commission agents, jobbers, retailers, and dealers were loaded with merchandise. Buyers had disappeared from the markets, and consumers gave the impression that human requirements had been satiated.

One walked through miles upon miles of deserted mills, wondering what had become of the many thousand human beings who had tended the machines.

The outstanding object of thought was inventory, mountains of inventory, ever increasing inventory as purchase commitments which could not be cancelled or bought off continued to be delivered; a very obsession of inventory, unbalanced, chaotic.

Bills payable to banks, issued to provide funds for the purchase of inventory, were coming due. They could not be met. Bankers were consulted. They extended the maturity date of loans but in doing so advised prompt liquidation of inventory.

Liquidate it, yes, but how? The banker replied somewhat sternly, but kindly withal, "Liquidate as a going concern. Start up the factory. Operate on a conservative basis with the minimum of loss. Get inventories back into balance. Clean up the excess and scrap the obsolete."

How to accomplish this?

The thinking which followed this inquiry became even more intense. Operate on a conservative basis with a minimum of loss? Fine, but how can one plan to operate on such a basis unless it is known in advance with fair accuracy how much of the product can be sold? The thing to do, therefore, if it can be done, is to make a sales estimate, a forecast, to use as a guide for production. How can a sales forecast be made? The past is no guide. It must be ascertained from the sales force, the men out on the firing line, what market conditions are. What potentialities of demand can be anticipated from wholesalers, retailers, dealers, consumers? What is their condition? What will induce them to buy, and how much will they buy?

The answers to all these inquiries resulted in that synthetic idea called a forecast which after all is only an idea, a composite of opinion. If, however, it is the composite thought of earnest, conscientious men who have analyzed and con-

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templated thoughtfully all the facts available before reaching a conclusion, it is a most valuable idea and one which will serve for the foundation of a production plan if this forecast, as allocated monthly, shall be revised and corrected each month as operations proceed.

And so the sales forecast appeared on the industrial horizon as an absolute essential of sound industrial procedure; no longer a mere estimate, but an idea thought through from the ultimate consumer, and relating his demand as to quality, style, and volume directly to production and to the balance and control of inventory.

During these days of intense thinking and reconstruction, bankers and manufacturers were closely associated. The idea that a business could be balanced and scientifically controlled when founded on a forecast, arrived at after sales research, was fascinating to both. Manufacturers who conceived and applied it early in 1921 and 1922 were able to get their inventories, and consequently their working capital, into shape promptly and to get under way again with a fair spread of canvas. Those who refused to think their problems through, or did not possess the capacity for such thinking, found themselves frozen hand and foot. In such cases bankers had

to take hold and do industrial thinking themselves. This is where they learned practically and conceived the full significance of the application of scientific methods to business.

Since those trying days there is no question but that scientific administration has gone a long way toward placing industry on a sounder basis. As has been stated, a necessity of the times molded it into its present efficient form. A more recent necessity demands the extension of its application and it would seem to be the only specific available with which to attack the devastating disease of competition in the great staple industries which now menaces industrial prosperity.

Mass production has reacted savagely upon the producers of staples. Ruled by tradition, producers and manufacturers of staples took little thought as to what was going on in consumer markets until the high cost of labor, raw material supplies, and machinery forced their manufacturing costs to such a dangerous level that profits were inundated and swept away. To cure this bothersome condition they imitated the highly specialized industries which had developed and perfected quantity production, the minimizer of overhead. They too would have line production and manufacture in such quantity

that a margin of profit could be established between manufacturing cost and sales price sufficient to justify current sales cost and administration charges.

Mass production, the maximum of output at the minimum of cost, which looked so fine when these good people were building their mills and equipping them with the latest developments in labor-saving machinery, did not appear so wonderful when consumer markets became saturated and satiated. They beheld with consternation that mass production had been transformed into a Frankenstein monster which threatened to beat them into insolvency, a very vampire sucking their life blood, working capital.

The unromantic cold fact was that they had learned only the mass production portion of the scientific system evolved and perfected by their highly specialized and prosperous neighbors. They realized only after years of waiting for the markets to get uncongested and unsatiated that mass production must be supported by mass buying, which, in turn, is dependent upon mass distribution.

At the present time it would appear that the producers of many staple commodities have been caught between the upper millstone, production cost, and the nether millstone, sales price, and

that their ancient god, tradition, assists in confining them in this narrow space where they scarcely have room to squirm. Their deplorable condition is described, somewhat sardonically, by certain of their successful competitors as the result of exchanging old dollars for new ones, of doing business for exercise.

By no means has it been plain sailing for the average business man of this country, much as he has been envied for his natural facilities by his neighbors in other lands. He has had to buck many strong tides and to outride many tempests. The future which at this moment seems so golden is largely colored by his past achievements. New conditions demand new accomplishments. The present is the day of the thinker, the philosopher in industry. Ten years ago scientific administration was derided as the theory of an efficiency engineer. To-day it is common business practice. Five years ago budgetary control was merely a charming story to which business men half listened, an intriguing system, possible only of successful operation under ideal conditions. To-day budgetary control is an essential part of any well-planned operating program.

Whether or not we have liked it, modern business has become highly complex and must

be conducted on scientific principles. In consequence the business man of to-day must possess the intellectual qualifications and the practical wisdom of a philosopher if he expects to attain preëminence.

Long before the application of modern scientific administration to business, philosophy was defined as "the knowledge in a scientific system of the ultimate principles, elements, causes, and laws that underlie and explain all knowledge"; and a philosopher as "one who seeks for first principles or fundamental truths, a man of practical wisdom." The learned man who created these definitions doubtless knew little about business and probably he never realized that this definition of philosophy would describe accurately the first principles of the modern industrial system as practiced in the second quarter of the twentieth century.

The exercise of the intellectual faculties has never been as agreeable to human beings as physical exercise. It is not easy to think along a definite line. More will-power is demanded to induce the intellect to attempt the solution of an intricate problem than to compel the body to unusual exertion. In consequence the great majority of mankind has always been content to accept the opinion of a small minority, com-

placently certain that original thinking on its part would not only be a tiring effort, but of little value.

The great thinkers in the past were comparatively few in number. In the main they lived detached from the active life of their contemporaries and devoted themselves to analyzing the experiences and emotions of existence, seeking to discover intelligent reasons to account for the instincts, the motives, the ideas, the ethics, and the spiritual conceptions of human beings. Certain of these thinkers, however, were impressed with the pulsing life of the age in which they lived and, like Socrates, they paused at every man's shop inquiring of him as to his trade, seeking to grasp the fundamentals of human existence.

More and more it is becoming recognized that the outstanding philosophers of former days were not mere visionary idealists, but teachers of practical knowledge. By explaining and demonstrating the qualities and powers of the human intellect, they planted the seed we call scientific investigation, the fruits of which are so many, so valuable, and so pleasant in these times.

The preparation of the intellect, its fertilization and cultivation for the reception, growth,

and ripening of sound ideas, is essentially as practical as the fertilization and cultivation of the soil for the reception, growth, and ripening of grain.

The philosophers taught the science of correct and sustained thinking so that practical ideas might result, and we of this epoch have entered upon the heritage bequeathed by them. Inventions are flowering on every hand. Realities are more marvelous than were their imaginings. This is an age of realization, an age in which thought, not fortuitous circumstance, dominates industry.

It can be stated as axiomatic that in these times a high degree of intelligence is required to direct and control the affairs of large producing, manufacturing, and merchandising enterprises. The future is attractive, therefore, for the student of business wisdom. The opportunity to acquire the desired intelligence was never so inviting as at present. What one has to do is to observe keenly, think deeply, work tirelessly, and apply practically at every opportunity the knowledge of the wisdom of business which he has acquired.

Work is one of the elements of human existence. Common sense is another. Deep thinking, combined with hard work and common sense, will carry a man far. If he so thinks,

reasons, and toils, he will find the hands of all good men held out to help him. He will discover the tools of scientific research at his fingertips. He has only to grasp and employ them. The leaders of the present age are not secretive. They tell freely what they know, even though it is one of the most difficult tasks to convey knowledge in a simple and convincing way. Man is undoubtedly a nobler being than at any previous time in history. Coöperation is fast becoming a human characteristic, something natural, not acquired. It is manifestly to the advantage of every citizen of a state that his neighbor should enjoy the highest possible degree of prosperity.

The business man facing current competitive conditions can possess no equipment superior to a comprehensive understanding of the principles and practices of scientific administration. He must recognize the fact that research is the primary principle: industrial research, which leads to the discovery of new and better mechanical and chemical processes; merchandising research, the object of which is the development of more attractive and profitable products; sales research, which is the study of markets and improved methods of distribution; management research, which seeks methods to simplify and

perfect processes of direction and control, and to discover ways of administration that are most effective while being at the same time the most economical.

The man of research is an explorer, a discoverer. He is perpetually dissatisfied, forever looking into the future, hoping to find something new that will lift the enterprise in which he is interested out of the rut of competition. To the average business man, looking into the future seems like peering into black night. Nevertheless, the human eye can be disciplined to see a great deal in the dark, and the human mind can be trained through scientific investigation to anticipate coming events with a fair degree of accuracy.

The producer who can best forecast his income can plan most effectively and most economically his operating schedule. This is the most challenging problem in the industrial world to-day.

Chapter Two

MARKET STUDY

THE capacity of the consumer to purchase is the essential consideration in the forecasting of sales. A producer or merchant would be foolish indeed if he advertised and attempted to sell his wares to people who possessed neither cash nor credit with which to buy. It is elementary common sense to state, therefore, that a knowledge of consumer purchasing capacity must be acquired by any producer or merchant who hopes to operate successfully.

The intelligent farmer who plants an orchard of apple trees, the production of which may reasonably be expected to prove in excess of his personal requirements, looks about him and satisfies himself that a market exists for the surplus fruit, that this market will absorb certain varieties of apples in definite quantities and that it will require of him that these apples be packed and shipped after proper inspection in accordance with established trade custom. He ascertains these facts by visiting the cities which comprise his market and discussing con-

sumer capacity, consumer demand, and consumer trade conditions with dealers interested in the distribution of apples.

Even the most stupid farmer would not continue planting apple trees year after year if his fruit rotted on the ground because people had given up eating apples and had gone in for oranges.

Bird cages are designed and styled to suit modern conditions of interior decoration. He would be a foolish manufacturer of this simple product who went ahead and made his cages solely for the convenience and happiness of birds, or as he thought they should be made, before ascertaining what were the consumer requirements in bird cages in material, form, and color.

It is fundamental, therefore, the very A. B. C. of business planning,—that markets must be studied and appraised in their relation to the products which it is contemplated to offer for sale, before the production schedule is drafted.

In a rich country like the United States it is obvious that a tremendous consumer purchasing capacity exists for practically all classes of merchandise. Potential purchasing power is but one factor to be used in evaluating a market for a given product. Willingness of consumers

to purchase is almost as important a factor. For instance, manufacturers of electrical equipment for the home know that California and the other states of the Pacific Coast form one of their best markets and that the ratio of sales to the potential purchasing power there is greater than for any other section of the country. This is because the people of the Pacific Coast have acquired the habit of spending money for luxuries and for articles which contribute to greater convenience in the home.

Consumer purchasing capacity exists in the United States to an inconceivable extent, but it is a most discriminating purchasing capacity and must be catered to and cajoled to an exasperating degree before consumer purchasing demand is set in operation.

Consumer purchasing capacity by counties in this country is a matter of statistics. The Department of Commerce at Washington is in possession of most of the facts and figures. A good statistician can, with little effort and expense, relate these facts and figures to the particular products under consideration. The result will look interesting indeed, but the study of these facts and figures will reveal that they are important only as leads to a more intensive study of markets as they exist in purchasers' minds.

There is an old German proverb which says "God gives nuts to the squirrels, but they must crack them."

Now the study and analysis of other men's minds seems decidedly impracticable and rather "highbrow" to the ordinary business man. Such study and analysis for commercial purposes were considered both impracticable and "highbrow" by the executives of the most successful corporations in this country immediately prior to 1920. These men, in great part, are now the devoted advocates of psychological sales analysis. They have eaten of the fruit of research and found it good.

What will women wear next season? Which color will receive their especial favor? Will the chosen fabric be silk or cotton, celanese or rayon? Millions of merchants are asking these questions six months in advance of the season. Many of them have trained research investigators who are little short of mind readers, studying the problem both here and in Europe.

Why is a particular color selected? What makes a design popular? What gives a fabric class? The answers will not be found in statistics, but in the minds of men and women. He who can forecast the composite opinion will be

the successful manufacturer or merchant of that season.

What hope of success has the complacent manufacturer or merchant, trusting in tradition and continuing to make and sell the goods of yesterday, in competition with those ever seeking, inquiring people who are thinking in terms of the goods of to-morrow?

It was only a few years ago that a ton of coal was merely a ton of coal, either anthracite or bituminous. In the bituminous fields in particular what was mined from between the roof and the floor of the mine was run over the tippie screens and was sold as either lump, run of mine or slack coal. A buyer who demanded an analysis of the coal purchased was considered finicky. Of course, there was ash and sulphur in the coal. Whoever heard of bituminous coal without ash or sulphur! Few large users of coal even knew the meaning of B. T. U's.

Now times have changed. Coal is being merchandised. The analysis goes with it like the seat coupon on a theater ticket. British Thermal Units are sold rather than coal. Definitions of the ash and sulphur content are made clear in every contract. Coal is analyzed at the mine face and on the car by the producer and reanalyzed on receipt by the buyer.

The coal industry, in greater part, has not yet adapted itself to these new conditions, but it must adapt itself to them, for they are here to stay and in time will become even more severe. The analyst is abroad in the land, a menace to old-fashioned and wasteful production practices.

Markets for coal are now being studied by research engineers and sales experts. "Adaptation to markets" is a common expression in conversations relating to coal. There is no industry in this country in a more deplorable condition at the present time, but men who study their markets and their production procedure, relate their products to their economic markets, and reduce their costs through scientific production practices, are hard men to defeat, and the coal operators who are so studying and striving will not be defeated.

The study of markets leads almost inevitably to their ultimate extension by effecting an economic relationship between the price which the producer is obliged to charge and the price at which the purchaser can afford to buy. It is well known, for example, how automobile manufacturers have enlarged the market for their cars by so reducing the cost of production that their products would come within the buying power of certain classes.

Moreover, market study revealed to these progressive manufacturers that even the market so ascertained could be doubled and redoubled by extending credits through the instalment sales system. It was through further patient investigation that they were enabled to determine the basis on which instalment sales could be made with safety. No phase of modern business has been researched more comprehensively and studiously than this.

It would appear that the market trend of cigars shows a downward tendency. The majority of smokers apparently prefer a cigarette, finding it more adaptable to their purposes in these highly nervous and hurried times. Cigar manufacturers, therefore, have been confronted by much the same kind of market as have the producers of coal. Production facilities have been greatly increased by machines for rolling, wrapping, and selecting cigars as to their color shades. In the face of such economic facts and of the keenest competition certain cigar manufacturers have greatly increased their sales, as a result of intelligent market study and analysis. They found, as many other manufacturers have discovered by making similar studies of their markets, that their salesmen were not properly developing the purchasing power of the terri-

tories in which they operated. Steps were taken at once to educate and train these salesmen and to insist that a given territory be developed to the limit of its purchasing capacity. Definite sales quotas were allotted to each territory. These quotas were set at an amount which the salesmen operating in that territory could reasonably be expected to attain. He was expected to report daily and when he discovered that the sales manager at the home office knew more about his territory and its sales potentialities than he did, he came to the realization that he would have to become a hard working and more efficient salesman if he was to keep his job.

The setting of quotas cannot be done efficiently, however, unless the sales manager knows each sales territory as intimately as a military leader knows his terrain.

In the setting of sales quotas a balanced judgment is important. It is possible to establish, as it may sometimes be necessary to do, a sales quota that is a marvel of intricate calculation. At the other extreme one takes the intelligent estimate of a good salesman and lets it go at that. A common-sense balance of opinion somewhere between these two extremes is most often the sounder policy.

For example, a certain manufacturer of a

building material knew the total consumption of his product by states, for the United States census gave him accurate yearly figures in this regard, but he possessed no such knowledge of the consumption by counties in the several states. He desired to set sales quotas by counties. His sales manager's estimate of sales by counties, when summed up, exceeded the state totals, and the estimates of individual salesmen were well below the state totals. The market by counties did not look so big to the men in the field as to the sales manager.

Now the principal value of a sound appraisal of one's market lies in providing a common ground upon which sales manager and salesmen can unite in a real understanding of the opportunities presented. Recognizing this fact, the manufacturer worked out a solution of the problem by developing statistically the obvious factors which experience had shown controlled the consumption of this product, and applying them to a calculation of probable consumer requirement.

The estimates by counties, so developed, checked closely with the state figures; in fact, the differences were so immaterial that the salesmen recognized the soundness of the statistical calculation and obtained an entirely new con-

ception of the market for their product. Consequently they were enabled to present the possibility of increasing sales in a new light to their dealers, with gratifying results.

The optimism of the sales manager and the pessimism of the salesmen had been brought into balance through the facts in the case being ascertained, appraised, applied, and, above all else, properly understood by both the management and the sales organization.

There is no end to interesting experiences in the setting of quotas. It had been the custom of a manufacturer of pens and pencils to assign each salesman a total quota. It was found that the men would make their quotas by concentrating on certain more salable items to the detriment of the others. To cure this evil he established weekly quotas by items, basing these quotas on an analysis of past sales, possibilities of the territory, and the salesmen's estimates of probable sales. Records of sales were kept and charts were exhibited which showed what each salesman was selling, demonstrating graphically how they were concentrating on certain items. In a short time this plan enabled the manufacturer to obtain balanced sales over his entire line.

A maker and importer of men's furnishings

has found it necessary to make frequent changes in his quota system. He considers such changes inevitable because, in developing a system of quotas from the ground up, certain stages and experiences necessarily have to be gone through. So far he has been using a quota system for three seasons. The first quota was simply a goal for the salesmen to shoot at and was based on the anticipated "advance bookings" in the three principal departments, underwear, hosiery, and shirts. This original quota was more or less a shot in the dark. The salesmen, on the average, came within only about forty per cent of it. Still, it was a start.

Then an effort was made to construct a quota on the basis of actual expectations as to the amount of business which the different territories should yield. This quota was made on a six months' basis. Each salesman's past record was taken into consideration in making up the quota, in addition to a fund of statistical information obtained from government sources, trade publications, banks, customers, and elsewhere.

In every instance the salesman was given an opportunity to accept his quota or to suggest revisions. In no case was a quota set up for any particular territory which the salesman covering that territory did not accept as fair.

The quota, as developed in this manner, is now working in a highly satisfactory manner and in the great majority of cases the forecast volume is being attained within a small percentage.

The outstanding feature of market study is the revelation of ineffectual sales methods and inferior salesmanship and when it is realized that every industry is superimposed upon its sales organization, the importance of the proper sales approach and competent salesmanship is appreciated. The economic chain is no stronger than its weakest link. Inadequate, untrained, unintelligent sales representation in consumer markets is the cause of many unsuccessful enterprises. Possibly it might be added in a spirit of fairness that many a market study develops the fact that sales troubles and buyer resistance are not due to inefficient salesmen and sales methods or a lack of consumer demand, but to careless processing methods in the factory. If the quality is inferior and the preparation for market careless, the sales department should not be blamed if sales develop a declining tendency. Market study reveals many a hidden manufacturing or merchandising sin.

There is no royal road to a knowledge of markets. They must be studied where they are located. Consumer psychology can only be

analyzed and consumer purchasing trends appraised by personal contact with consumers.

If the piano manufacturer would properly develop a market for his instruments in the city of Omaha, for example, he must ascertain what the people of that city are thinking about in terms of musical instruments. He must discover in what degree they desire pianos as compared with phonographs, radios, and other musical devices. He must ascertain the purchasing capacity of the Omaha zone for pianos; how many people there are in this zone, who can afford to own a \$2,500 player-piano or a grand piano, how many can afford to buy a baby-grand or an upright, how many of these good people already own pianos, the present age of the pianos now owned. He must discover if these people are in the mood to exchange the old piano for a new one or, if they have no piano at all, what kind of a piano they would prefer. Could they be induced to buy a piano under any circumstances? In how many homes in Omaha are there young girls and boys of the proper age to learn to play the piano? And so on through a dozen or more equally important questions, every one of which could be answered satisfactorily by an intelligent market study of the inhabitants of that particular city.

Such a study would include the methods and potentialities of distribution in Omaha, namely, how many pianos are now sold in that city, who sells them, are the piano dealers making money, and if not, why not? It is unquestionable that with the knowledge of all the facts surrounding the distribution of pianos in Omaha, a piano manufacturer could either establish the selling of his product in that city on a sound basis or determine not to do business there.

The objection may be raised that the results of such a comprehensive market study would not justify the expense, the belief being somewhat general that sales research is costly. It can, of course, be made complicated and extravagant, but when intelligently planned in the home office where all general statistics may be gathered and sorted at a minimum of cost, such a study as has been outlined may be made of the entire United States at an expense small in comparison with the result certain to be attained.

Also, the thought will arise that high-priced experts must be engaged to oversee and conduct such a market study. It would be wise to engage people trained in such work, to outline and guide the task to be accomplished if the executive management does not know how and the sales management confesses inability to

function properly. To be most beneficial, such a study should be made by the organization itself. No man's intellect will develop from another man's thinking. A producer must master his own market problems or be prepared to see red ink creep into his operating statements. Mental laziness is more to be deplored than physical laziness. Inertia is the Nirvana of the unsuccessful.

As between success and failure, the reason is often just around the corner. Analysis of its sales by a large ink company for the preceding year showed no increase, while market investigation proved that there had been a large increase in the national consumption of ink. Further investigation developed that the manufacturers of fountain pens were manufacturing ink and that this had become quite a factor in the ink market. To minimize the effects of this new competition the ink company put on the market a line of fountain pens and is now successfully obtaining further distribution for its ink through the marketing of fountain pens.

A company manufacturing stoves realized that it was not receiving a proper sales response to its advertising. It made an analysis of its sales in several states. This embraced the sales of different items by towns and the sales through

various types of trade outlets. A questionnaire was also sent to dealers in the selected states to elicit information concerning the location of the purchasers of the company's products. The information thus obtained enabled the company to visualize its distributing system and as a consequence to direct its advertising to those sections offering the best sales prospects. A large saving was thus effected in its advertising outlay.

Simplified and boiled down to a common-sense content, market study is an absolutely necessary phase of scientific administration. In fact, there can be no scientific administration without it. It is the primary principle of the system, the foundation on which it rests.

Market research is doing for marketing what production research has done for production. This analogy will be readily appreciated by those who are familiar with efforts to improve production efficiency. In mining operations, for example, the existence, magnitude, and grade of the ore deposits in different fields are determined in advance; diamond drilling and other production research aids are used to determine where the shaft should be sunk, in what direction the drift should be, and the probable return from the investment and effort required.

In a like manner market research aids are used to "diamond drill" in advance of sales effort, to determine the existence and extent of a market for the product in different fields and the sales resistance which will have to be overcome. From the facts thus developed, a determination can be made as to whether the potentialities of a particular market are worth cultivation in the light of the selling cost involved and its relative value as compared to other markets.

Market study reveals that different classes of buyers of the same product view its value to them in different lights. Modern selling effort directs its appeal toward each different class and in the terms of their differing self-interests. Market study determines the type of salesman required and the method of sales training. It brings about a specialization of advertising appeal in terms of that same self-interest, simplifies the choice of media, and permits a more precise determination of the advertising expenditure required.

Having studied the consumer capacity and appraised the consumer demand of the markets in which he anticipates selling his products, a manufacturer is in possession of facts and information on which to make an intelligent estimate of probable sales—not possible but probable

sales. He jeopardizes his whole plan of production and distribution who bases his sales forecast on possible sales. Anything and everything may seem possible, but only certain attainable and predictable results are probable.

It is the part of wisdom not to overestimate sales. Beating a sales estimate is joy to a good salesman. Being licked by a sales estimate is sackcloth and ashes. And why overestimate anyway? There is always the minimum inventory of finished or almost finished goods standing between the sales forecast and the production schedule, prepared at all times to take up the slack. But radical underestimation of sales is almost as bad as overestimation. It is plain common sense to hew to the line, to put down on paper as the sales forecast what can be believed in confidently as the probable sales, conclusions which have been thought out, sweated over, analyzed, reviewed and re-reviewed. There has been prepared in this way a sound foundation on which to stand.

Under a planned sales system, if a mistake of over or under estimation has been made in the sales forecast it will be discovered in the first month of operation and will have its influence in minimizing the possibility of error in the forecast of the remaining eleven months. It is

better to make such a mistake than to drive forward blindly into the future, dependent on the gossip of the day as to the possibility of tomorrow.

The man who has made his sales forecast after patient and exhaustive market study knows in his heart that he has done all that an intelligent executive can do. Only a genius or a quack is expected to perform extraordinary things.

But if one particular sales forecast, after such a study of markets as has been outlined, were to go utterly wrong and prove of no value as the basis of a production schedule, the market study still would have been worth while, not alone to the executive management, but all down the line. Thinking can result only in progress. One cannot think himself into ignorance. The next forecast will be better.

Bad as the sales estimates may have been, some human being made them, intelligently trying at the moment to do a good job, and other human beings up the line checked his estimates after mature deliberations, as being within the limits of probability. Each such human being made a mistake, now knows he made a mistake, wonders why, thinks over his sources of information, appraises them in the bright light of actual performance, appraises his

own ability to perform as he had forecast that he would perform, and resolves not to be fooled again by the mirages that previously deluded him.

Each forecast of sales can be made a ladder upon which a management can climb to success by treading beneath its feet each failure in estimating market probabilities, learning from such failures how to avoid them in future.

Using golf parlance, the attaining of 95% of the estimate is bogey in the great game of sales forecasting and 97% means shooting par. The dub begins around 75%. The game is not learned in a day, but every intelligent human being can improve with practice.

Every one will admit that if it were possible to make a sales forecast that proved 100% correct, the maximum efficiency in operation at the minimum of cost would be obtained. Therefore, that management is most efficient that can most accurately forecast its sales, for the sales forecast is the direct foundation of the operating schedule.

A sales forecast based only on past experience, weighted with conditions as they look at the time the forecast is made, is unsound as compared with a forecast which is also based on an exhaustive study of markets and the knowledge of their possible requirements thus obtained.

Market study is particularly interesting and instructive at the present time because of the broad dissemination of consumer purchasing power. It is admitted generally that one of the outstanding causes for the general prosperity which exists in this country lies in the increased capacity of wage earners to purchase merchandise of all kinds. Wage earners are the great majority of the people of this country. The study of this extensive new market is therefore of vital importance. Wage earners are purchasing all kinds of things, but, definitely, what types of things are they purchasing and through what channels of distribution? These are the questions to which manufacturers and merchants must find the answer.

Chapter Three

MERCHANDISING

MARKET study naturally precedes the formulation of a merchandising policy. What, in kind and amount, people will probably purchase during a prospective sales period must be ascertained before deciding on what shall be manufactured and offered for sale in such period.

Merchandising is the most artistic of the elements of business and it is becoming scientific in a high degree.

It embraces in its scope quality, design, style, color, preparation, and service. Each of these attributes of merchandising applies in varying degree as well to a steam engine as to a lady's gown.

The science of merchandising consists in so thoroughly examining, through research, all the facts which can be ascertained in relation to each of these several attributes that assurance of consumer acceptance can be anticipated with a reasonable confidence.

Such a study will include, naturally, the relation of production cost to sales price; for, argue

as one may as to the potent sales appeal of quality and style, the relentless fact remains that price exercises a dominant primary influence upon the vast majority of buyers of any article of merchandise.

The art of merchandising lies in so preparing and presenting a product for sale that price becomes secondary in buyer appeal to quality, design, and style, or any of them.

Relating a product to its market with just the artistic touch which makes it seem a little superior to the standard of that market is true merchandising.

There is a vast difference between human requirements and human desires. What will satisfy the former may prove unattractive to the latter. The cultivating by suggestion of consumer desires, thus creating consumer demand, is a phase of the art of the merchandising specialist. It is inferior to no other form of art in its demand on the intelligence.

Merchandising in terms of an economic formula might be expressed as the production of an article, so processed as to possess the broadest market appeal, at the lowest possible cost, and selling it at the lowest sales price, consistent with a fair profit, in the shortest possible time.

It should be borne in mind that the real mer-

chant is he who applies to the raw material in process of manufacture the qualities of design, color, style, and preparation which will make it most attractive in its market, not he who simply is a distributor of merchandise.

Quality necessarily is of commanding importance in merchandising, but quality must be accompanied by design, style, and all the other attributes of merchandising to realize the reward it deserves for intrinsic merit.

Quality and sales price must relate themselves to each other. In fact, the law of relativity exercises a commanding influence in sound merchandising. Quality must conform to the inevitable standard of the sales dollar. It is the province of good merchandising so to regulate quality that it shall fill the place assigned to it in production and give the best possible account of itself in such position.

Many manufacturers have the mistaken idea that quality alone will sell a product. In one instance, a manufacturer who is a leader in his field, was turning out the highest quality product recognized as such by the trade. In addition, this manufacturer had a brand name for his product, known in every household. He failed to comprehend why other manufacturers, the quality of whose product was not on a par with

his, were cutting into his sales. Analysis showed that his competitors were more alert to style trends and were getting both style and color into their products, and that these more than offset the quality feature he was stressing. This manufacturer is now spending a good deal of money in an endeavor to recapture the market which slipped away from him.

The artistic styling of the product is a most important element of merchandising, other than that of the plainest staples.

Many articles previously considered staples now require style treatment. A manufacturer of sheets conceived the idea of tinting the fabric, so that the sheets would harmonize with the color scheme of bedrooms. These tinted sheets have now progressed from a novelty to a necessity. Soon the salesmen of a competing concern were writing to their sales manager that they had to have tinted sheets in their line.

Style is a condition of human taste and impulse, not a tangible thing, and it is at best a transitory and elusive condition. What constitutes style in the observer's mind this year may appear un-stylish and old-fashioned next year. It would be very difficult to determine with any degree of definiteness how any particular style originates. New ideas are the bases of style. Conceptions

of form, design, and color, originating in creative thought, coalesce as do crystals into harmonious ensembles. Their originator looks upon the synthetic product of his intellect, and calls it good; but far from trusting to his own judgment, he tries it out through various ways of presentation to the public before deciding to back it financially.

The buyer's sense of style develops slowly. At first a new style, presented and authenticated by unquestioned authority, may possess no appeal. It may even repel rather than attract. A striking illustration of this is cubist art. Few people thought a few years ago that cubist designing and coloring would ever form the basis of a style, and yet the most stylish of the great transatlantic liners is decorated throughout in such a style.

As soon as the passenger automobile was perfected mechanically it became a styled product. This particular industry has furnished, within the past year, preëminent testimony to the dominating power of style in merchandising.

It would seem that as civilization progresses, as people have more leisure and become more intellectual, style assumes a progressive authority. That which in one period is simply a

style may develop subsequently into an exquisite art, a sublimation of style.

To-day style is a comparatively new factor in industry; consequently its range and application are changing rapidly. The nearer in time the manufacturer or merchant can place himself in relation to style trend, the safer and more profitable it will be for him.

The latest style and the resulting profitable price are twins, fascinating to all who are desirous of attaining commercial success.

Frequent style changes are a menace to the unprogressive manufacturer and merchant and a blessing to their wide-awake, thinking competitors who have learned to control their inventories and are always out of old merchandise and offering new.

Let it be repeated, especially when considering style, that he is the most successful business man who is most discontented with the progress he is making and is constantly employing research in every department of his enterprise.

In an interview in the *New York Times* in February, 1928, a prominent, long-established manufacturer of ladies' cloaks and suits in New York City referred to the lack of market and style knowledge as the cause of the small profits in this branch of the cutting-up trade. He said:

"No attempt is made to gauge, from the standpoint of the industry as a whole, just what the consumer demand is likely to be in any season. Too often garments of certain styles are offered without any definite knowledge on the part of the producer as to why such styles are likely to be accepted by the consumer, and too often styles are rejected by the consumer without the manufacturer knowing why they prove unacceptable. Styles should be planned as the result of research and should come from exact knowledge of what is wanted instead of being based on opinion as they are to-day."

Change in the style and design of a product often is effective in stimulating consumer demand. Buyers are in search of the eternally new.

The sales of a company manufacturing principally grass summer rugs had been decreasing at an alarming rate, and profits had turned to deficits in spite of the addition of new products to utilize existing plants and machinery. Analysis disclosed that the future of the company definitely depended on whether the market for grass rugs could be built up again. Business had been lost, not to competitors, but to other types of cheap floor coverings. It was found that the company was in the midst of a vicious circle. As sales decreased, cost of manufacture went up

and sales prices were increased. As prices were increased, sales decreased further.

To meet this situation new products were added to the line. Entirely new weaves were developed. Antiquated patterns were completely replaced by new ones more in line with modern trends. The personnel problem was solved by replacing the sales manager with a younger man who had been successful in another company operating under modern conditions. The sales force was increased. Territories were redivided and quotas prepared. Prices were reduced to a figure which enabled the trade to sell the goods in competition with other types of floor coverings and at a profit. Results immediately began to show themselves. The trend is now favorable and all signs point to a probable revival of the business of this company.

Color is coming into its own in this land of wonderful natural colors. Our good forefathers were addicted to drab and somber shades. To them the Indian seemed fantastic in his vermilion hues. Gray was the tone of the contrite, humble spirit, and black was the color in which to sit in the presence of the Creator.

Gradually those beautiful natural phenomena which are termed color—the purples, reds, pinks, blues, yellows—are making themselves manifest,

not only directly, but in their myriad tones and shades, so that the human eye rejoices.

Color is a business builder just as are style and design.

Preparation is an important element of merchandising. The consumer demands that what he buys shall be prepared for him in the way he wants it. If he is a buyer of cigars he wants them in boxes of twenty-five or fifty, not one hundred as of old, and he is influenced by the manner in which cigars are packed and wrapped. The buyer of coal for domestic use wants lump coal or an egg coal. He does not want a conglomerate and he will not have it. The proper preparation of canned foods is essential. The attractive form of the container and the color of the label exert an astonishing influence on buyers' minds. Apples in printed tissue wrappers, packed each in its separate compartment in a carton, sell at a much higher price than do the same apples shipped in a barrel.

The quality of material in a product may be excellent, but if this material is not processed, styled, labeled, boxed, packed or crated to meet consumer requirements, the value of the finished product will be depreciated. Inspection, no matter how thorough, is not the final solution of the problem, for the closer the inspection the

greater number of seconds, rejections, and remakings, all disastrous to the manufacturing cost. The product must be so processed and prepared that seconds are minimized under the most painstaking system of inspection, and rejections and repairs eliminated. What is demanded is intelligent production planning and vigilant supervision over every phase of processing and finishing. Too many heads of departments, too many superintendents and overseers love their desks too well. Seeing, hearing, feeling, smelling, and tasting are more valuable ways of acquiring knowledge than being told something by some one else. One visualizes Henry Ford wandering about his great factories observing things.

The selection of a line of products to be manufactured and sold is an important function of merchandising. Research and analysis are the resources to which management can look confidently for assistance when determining the line. In a great many cases certain articles are carried along from year to year in the merchandise line without analysis of their profit-producing power, just as old employees, whose faces are familiar, are retained on the payroll without management having the initiative or the courage to inquire into their essential usefulness.

An article of merchandise which turns over six times a year or more can be priced much lower than a similar article whose turnover is only twice a year, and in most instances price reduction means increased sales with the consequent shrinking effect on overhead.

Therefore, it is of the utmost importance frequently to analyze a line of merchandise as to its ability to turn over and as to the method of distribution employed to assist it to turn over.

A prominent department store executive recently said that he is much more interested from a profit standpoint in the daily purchases than in sales. He is convinced that simplification of lines in all departments is essential, and is thoroughly convinced that successful stores are those that have smallest inventories at all times. His store reduced its inventory considerably during 1927 and increased its turnover volume and profits. This man is a firm believer in hand-to-mouth buying by the store. He feels that, while statistics are helpful, the human equation is still essential in merchandising, and that unless the merchandise managers and buyers spend most of their time on the floor watching the sales to consumers, they will not be successful. He has reached the conclusion that old buyers cannot be educated to new methods of selling. His

store had to let out practically all their old merchandising managers and buyers. In his opinion one of the most important things the manufacturer has to do, if he is to improve his business, is to get closer to the customers and know their wants rather than to try to tell the department stores what the consumers should have. A merchandising manager of one of the country's largest and most prosperous department stores recently stated: "Merchandising control, facts, and statistics are essential to successful operation, but the human equation should still be given considerable emphasis. We can usually gauge the success of our merchandising managers by the percentage of their time spent on the floor watching the consumers purchase and learning their wants. The unsuccessful ones are those who cling to their desks, trying to figure out in their minds what they want the consumer to buy."

The large metropolitan department stores have reduced the sales-turnover characteristics of merchandise to an exact science and certain of them relate their purchases directly to the turnover characteristics manifested in analysis. Their purchasing programs are so planned as to supply the requirements of the turnover and thus accentuate the hand-to-mouth system of buying

which appears to be such an evil to many manufacturers and jobbers.

Visualizing a great department store, one can readily picture the vast stock of goods in countless varieties of kinds, colors, and styles, all turning over at various rates of speed and watched by a vigilant executive in charge of merchandising with stopwatch in hand, dictating to a secretary the several rotary periods. Certainly these are bad days for the unfortunate article that lies on the shelf or stands in the showcase for six months at a stretch without somersaulting into a consumer's hands. Such articles are looked at askance and a fatal cross is liable to be placed against their names on the buyer's book. Style changes are so frequent at present that merchandise left unsold in manufacturers', jobbers' or retailers' hands at the completion of a sales season is semi-obsolete and must be hurried to the bargain counter in hope of sale before the junkman gets it.

A merchandising policy based on turnover will never go far wrong. Distress has come to many industries because the sales turnover and the manufacturing schedule were not coördinated. It seems to be a fetish with certain manufacturers to maintain the sanctity of their production schedules in the face of declining

sales. Satisfactory profits can be shown to confiding bankers who are advancing credits on manufactured goods and work in process. Such people have no merchandising policy—they operate under the easy-going law of expediency.

In a brief report with suggestions for the regulation of silk production, the vice president of one of the largest and most successful broad silk manufacturing companies in this country outlines a plan of merchandising which is not only applicable to his particular product but to many other products. After discussing the current relation of deliveries of broad silks on the basis of yards per loom owned as against average stocks for the year, he states:

“Analysis of the relationship of these figures goes to the very heart of the silk business. The uses of broad silk are subject to continuous and rapid changes of fashion, which means that the great majority of goods held in stock by manufacturers are in stock for the reason that there is no immediate demand for that particular weave, pattern or color. The pieces in stock may have been made in anticipation of a demand or arrived in the finished state too late for a past demand; in either case they are not

wanted and their presence reacts definitely to the disadvantage of the corporation owning them and to the silk industry as a whole. Such quantities of inactive yards are unproductive dollars and cents, tying up useful capital and depressing the market value of goods actually in demand.

“The theoretical ideal is that of a silk manufacturer who sells and delivers each finished piece that arrives in his store immediately upon its receipt from the mill or dyer. Such a situation would mean the carrying of no stock or inventory whatsoever; on the other hand, it would mean that this manufacturer could not possibly give adequate service to his customers in supplying all the various phases of demand as to pattern and color. It would seem then that the ideal situation would be that of a manufacturer who carries just sufficient in stock in order to make proper and prompt deliveries, and never has on his shelf merchandise that is out of season or out of demand.

“From a careful study of this problem over a period of five years, it is our belief that this point can be arrived at. First, by organizing in such a manner as to be able

to obtain the utmost possible style information and by analyzing this information as it applies to the articles which our looms are able to produce and our customers willing and ready to buy. This analyzation must of necessity rely upon forecast, as at least three months are necessary as a general rule from the time of shipping raw silk to the throwing plant until the pieces in the correct color are received from the dyers. Having arrived at a fairly accurate method of forecast, the manufacturer should keep a balance sheet of running inventory. The word 'inventory,' in this instance, is applied to all woven goods, in the grege state, at the dyers, and to finished merchandise.

"Starting at a given point which must actually establish the correct yardage of inventory, he adds each week to the credit side of the ledger the actual number of yards produced by his looms. On the debit side he deducts for the same period the actual yards shipped out to customers, thereby keeping weekly a running balance of actual inventory in yards. As the dyeing and finishing processes are a matter of at least four weeks, it would appear that in order to keep in liquid shape, so as to give service

and yet not carry unwanted qualities and styles, the total of this inventory should never exceed a figure which is twice the amount of the average month's sales. A review of a given number of looms producing will easily show the average monthly sales of his business in yards over a period of a year. Take, for example, a manufacturer who has sold in the past an average of twelve million yards a year. He might have sold a large percentage of this twelve million yards within only four months of the year. Nevertheless, his average for the year is one million yards per month. Consequently his inventory should never be more than two million yards.

"There would seem to be a tendency on the part of most manufacturers to anticipate the peak months of sales by producing heavily preparatory to these months, and increasing their inventories before these months, believing that when the peak-sales months arrive they will be prepared to take full advantage of that glorious time when the buyer is hungry for goods and there will not be enough to supply him. The result of this preparation for the peak months has been that everybody, inspired by the same

desire, has produced a great deal more yardage for these months than this country can possibly consume, and the peak months have consequently, for the past years, always been the dumping and price-cutting months. If, however, the important and representative manufacturers of this country would agree to hold their inventories down at all times to a maximum of twice their month's average sales, it is obvious that production would automatically walk hand in hand with consumption, and the market taken out of the buyers' hands and placed, where it rightfully belongs, in the hands of those people who are putting their time, brains, effort, and money into the production and development of fashion articles.

"If a manufacturer is concerned by the fact that his inventory is four times his average month's sales and continues to complain of the meagerness of his profits, he must eventually realize that the added stock that he is carrying is one of the definite causes of his trouble."

The foregoing quotation is an excellent outline of a scientific merchandising policy and program. The statements made are those of a

practical manufacturer whose business is successful at a time when a majority of his competitors are finding it difficult to operate at a profit.

Modern merchandising conditions demand exceptional service and great flexibility on the part of the retailer, jobber, cutter-up, and manufacturer. 'The buyers' market is here to stay for some time. Overproductive capacity is being increased rather than absorbed. Industrial research has accomplished so much in recent times in the introduction of new and improved machinery and mechanical processes that productive power is practically unlimited. It is possible that a scarcity of raw materials may again create a pronounced rise in commodity prices which would have a tendency to decrease production and thus create such a demand for merchandise that forward purchasing of merchandise would be once again in volume, but this is more of a seller's hope than an expectancy. Such a diversity has entered into every class of merchandise that a shortage in one line would be supplied quickly by another line. In other words, practically every article of merchandise has its understudy. If a real product becomes extinct, a synthetic product takes its place.

There are three marvelously potent words in

industry — coördination, control, flexibility. When these three words coalesce and act as a unit the results, expressed in terms of the operating statement, are decidedly gratifying.

It is a dream of those deeply interested in promoting improvement in business procedure that one day the relations of production, merchandising, and distribution will become coördinated with consumer demand under a flexible system of control. Such a happy consummation would result in raising the earning power of labor, at the same time lowering the prices of whatever labor desires to purchase, a most desirable economic paradox.

Merchandising calls for intellectual development of a high order. The ignorant, reactionary or merely imitative business man cannot hope to attain any considerable success.

The school, the college, the university, are now adapting themselves to the educational requirements of the age. Much as one may respect former educational systems, it is evident that what the youth of a period require of education is that which shall fit them to grapple with the social and economic problems of the time in which they live.

It is a most gratifying testimony to the wisdom of the trustees of our great universities that they

have established regular courses in business economics and are teaching in a practical way and, it should be added, in a very simple and human way, the arts and sciences of industry.

The boy who receives a technical education from one of our several famous institutes of technology gets off to a flying start in business. Men of the older generation realize this fact. They find young men of thirty occupying positions of executive responsibility which they were only able, through the education of experience, to fill at fifty. Let the exception be noted, however, that the rule-of-thumb genius will probably always be with us.

There is nothing finer in this world than a trained mind. The play of the intellectual faculties in the problems surrounding designing, styling, and fabricating merchandise is fascinating in its appeal. No wonder that the factory and the shop have become so interesting to the manufacturer and the merchant that they are eager to be at work early in the morning and seldom know when to go home. The bank is equally attractive to progressive bankers, for all the problems of finance and industry come before them, and nothing is more compelling to an active mind than coming to grips with such problems and aiding in their solution.

Every man's business is different in certain essential particulars from every other man's business, just as every man is somewhat different from every other man. Consequently, merchandising problems present themselves in different forms and varying colors to different manufacturers and merchants. Every man must necessarily solve his own problems and he will never make a success of his business unless he does solve them. It is quite possible that one can hire thinkers to think for him and give him new angles and stimulating suggestions but, unless he too is a trained thinker, he will never know if the hired thinkers are thinking correctly.

Chapter Four

DISTRIBUTION

DISTRIBUTION is the most complex element of the commercial structure. Accordingly, attention is being concentrated upon it and various solutions of this problem are being offered and tested. Some possess essential merit, others are merely expedients.

The most economical method of distribution is direct from primary producer to ultimate consumer. So flowed the stream of distribution in primitive times. It was plain and fair sailing down this stream in colonial days. But the people spread over the face of the country from ocean to ocean and from Canada to the southern boundary. Railways pursued the migrating population. Cities and towns in every section became new centers of trade. The original producer and the ultimate consumer of every form of merchandise lost touch with each other. The producer could no longer distribute and market his own goods economically, and as a result professional distributors took possession of trade, demanding a trading profit or a com-

mission as middlemen. In proportion as these middlemen increased in type and number, the original producer and the ultimate consumer were pushed farther apart. Naturally these two, who had been such intimate friends, lost touch with each other's wants, tastes, and desires.

Practically up to the beginning of the Great War a seller's market existed in this country. Consumer requirement increased just a bit faster than productive capacity. The twenty-five-year period immediately prior to the war was a cycle of factory building.

As stated in the introductory chapter, the war requirements for materials and supplies of all kinds caused a huge increase in producing capacity. The scale was tipped the other way, as a result, and a buyer's market assumed predominance. The situation was further complicated by the spontaneous introduction, in a determined way, of hand-to-mouth buying.

Throughout the period of the seller's market no complaint of any moment was found with the middlemen. They developed great merchandising and marketing enterprises, became bankers for such producers as could not wholly finance themselves, appropriated certain functions of production, such as converting and finishing, and generally assumed a masterful position, dictating

styles and terms to both the party of the first part and the party of the second part.

When the consumer buyer came into power and began to ask questions about the high cost of living, with particular reference to the extravagant cost of distribution, things at once began to happen. The dams which these middlemen had constructed across the stream of distribution, for the purpose of stopping traffic while toll was being taken, now developed into points of congestion, and the old stream began to back up and act peculiar.

Even before the coming of the buyer's market certain intelligent men who had observed the erection of the aforementioned dams, and as a consequence exercised their reasoning faculties, came to the conclusion that one of these days consumers would become indignant at being obliged to pay the freight, the commissions, the income taxes, the sales expenses, and all the other overhead burdens superimposed upon the manufacturing cost of the merchandise they required.

They wondered if they could not discover a way out of this imbroglio of expensive distribution. As a result of this wondering and exercise of the intellect, the mail-order house and the chain store came into being. Their success from

the first was phenomenal, because they restored the law of economics to distribution. They purchased cheaply because they forced their manufacturers to produce cheaply, and they sold cheaply trusting in the volume which they felt certain would proceed from consumer good will.

For several years they were considered merely as phenomena in distribution, comets which pass across the sky, interesting while they last, but not particularly disturbing to the cosmos.

It was not realized until the advent of the buyer's market that these mail-order and chain-store people, having opened new channels on either side of the old stream of distribution, had tapped the stream at its source and left for the middlemen mighty little water on which to float their craft.

Contemporaneously with the firm establishment of the buyer's market came a pronounced improvement in transportation efficiency and service. At the same time the automobile brought the village and the city within easy distance of each other, the radio made national conversation an evening affair, and the telephone reestablished intimate contact between seller and buyer. The department store, having weathered an experimental stormy period of ups and downs, established its operations on a scientific

basis, took command of its particular commercial province, and elevated itself to the ranks of the aristocrats in trade.

Not to be outdone in efficiency of distribution and market adaptability, certain manufacturers deserted the old ways and blazed new trails. One well-known corporation producing silk hosiery set a brilliant example in the economic distribution of its products. It recognized that hand-to-mouth buying had come to stay and made a complete change in its corporate policy, adopting and publicly proclaiming a hand-to-mouth method of distribution. The result has been a turnover of its inventory of finished goods of from 28 to 30 times a year. Certain customers who retail its products have been able to effect a turnover of these products at a rate of from 15 to 22 times annually, while the average stock turnover of the retailer of this class of merchandise ranges from four to six times a year.

As a result of all this efficiency in various channels of distribution, commission agents, jobbers, and small retail distributors found the volume of their several businesses greatly diminished with a corresponding decrease in profits.

Thoughtful study was concentrated on this unfavorable situation. It was recognized that the law of economics had compelled the changes

and modifications in methods of distribution, for the sufficient reason that the scientific system adopted by the department stores and others had taken control of industry, requiring each element of the system to pull its fair share of the load. Under the terms of this system an appropriation of a definite percentage of the sales dollar was allotted to distribution and it must function within the expense limitations set for it if the anticipated profit were to be realized.

The former methods of distribution fought fiercely for survival and refused stubbornly to coördinate themselves with the system of scientific management, though it was evident that every dollar saved in distribution expense was a dollar added to net profits.

The system demanded that producer and consumer should come once again into a close and intimate acquaintance. It recognized that the jobber performed a useful function in distribution if acting in coöperation with the producer, but that he had no place in the picture if he assumed the position that the producer should not attempt to follow his goods through his warehouse to the retail distributor and again through him to the ultimate consumer. The system required that the jobber should recognize that the producer must know his markets intimately if he

was to manufacture intelligently, and assist him as a partner instead of blocking his way.

In consequence, the branch house came into being as a center of zone distribution. There is grave question whether the branch house is as effective and as economical a method of distribution as the jobber, but at least the producer controls his distribution. The jobber represents owner management, while the branch house is operated by salaried management. There is little doubt that the former possesses most of the requisites of an ideal distributor if he would only coördinate himself with the producer and get back of the merchandise he distributes, be a salesman, not simply an order-taker—be, in fact, the advance agent of the producers he represents, a lookout for them in consumer markets, an adviser and a friend. It is apparent that he should recognize the relative value of his position in the economic system in which the producer is an absolute necessity and he merely an aid, useful in so far as efficient.

He has been forced in certain instances to recognize this fact. Retail buyers now demand contact with the manufacturer. Many intermediate distributors, appreciating this fact, are having the manufacturers bill directly to customers in the endeavor to convince them that

no exorbitant selling profit is being taken by them as agents.

The retailer, large or small, comes in direct touch with the consumer. He has assumed a preëminent position in the scientific business system. But competition is especially fierce on the firing line, where the product and its potential buyer face each other and where price, quality, style, and preparation exercise the final influence affecting decision. Here is where true salesmanship should be most effective, but where order-taking, that inexcusable result of carelessness, incompetence, and inertia, predominates.

The small-town retail merchant, the man who owns his own store and is his own master, must go unless he and his associates in the business arouse themselves and equip themselves to become intelligent and efficient elements of distribution.

In order that they shall be able to compete with the mail-order house and the chain store, they must be able to purchase in quantity so as to obtain their merchandise at the lowest cost prices. In order to meet this situation, they must associate themselves into groups and purchase through a central organization powerful enough to obtain the most favorable terms. Such coöperative buying associations will serve

as a check to the distributing domination of chain stores in particular and they will have in their favor the support of the communities in which they are located.

Chain stores have not given proper consideration to local sentiment. They have not catered to the local banker and the local newspaper as they should. It would be well for them to analyze the sentiments of the consumers of a town in which they establish a store as carefully as they investigate the location of the store and analyze consumer purchasing probabilities.

There is hope therefore for the small local merchants if they will arouse themselves and form groups about central purchasing organizations or mother stores. The great majority of their fellow countrymen do not wish to see them eliminated. They are good and reputable citizens, house owners, people vitally interested in their home towns. He is their best friend who warns them of the dangers of their present situation and suggests a way out.

The dealer who sells automobiles, radios, phonographs, electric refrigerators, pianos, and those many products of manufacture which are disposed of on the time-payment plan, is a most essential element in distribution. The chain store will not take his place, nor will the mail-

order house, although the latter is omnipresent, selling everything everywhere.

Necessarily the dealer must be a real salesman. He could not exist if he were content to be simply an order-taker. The dealer distributes specialties, and it requires true salesmanship to interest consumers in specialties, for new specialties are appearing constantly, appealing for a share of the unpledged consumer capacity to buy.

He has his troubles and is more or less neglected by the manufacturers whose products he distributes—but not by all. Certain manufacturers have recognized for some time the vital importance of the dealer in the distribution of their products and they have gone out into the by-ways where he lives to see him and discuss his affairs with him intimately. They have discovered that in most cases he is a man of independent character who prefers to have his own shop and be his own master, that he possesses a limited capital invested in his business, that credit is essential to him, that he knows little about a proper control of expenses, that he is liable to favor a shop on the front street with a plate-glass front and high rental when a cheaper shop on a side street would have proved to be the right place for his business, that overhead is only a name to him and a monthly

balance sheet and operating statement wholly unconsidered details.

So they have sat down with him and talked things out. They have told him that he was their friend; that the success of their business in his community depended upon him; that they had learned many things as to the best way to sell their product from results obtained throughout their entire market; that they wanted him to become conversant with all these sales matters and, further, that they were prepared to help him set up a proper control of his expenses because they desired him to make money, knowing that the more successful he was, the more efficient he would prove as their distributor.

With the consent of the dealer they have gone with him to his bankers, discussed his business with them, outlined the scope of their own business to the bankers with the object of inspiring confidence in the dealer and the product he was offering for sale. The result of this has been a satisfied and efficient dealer distribution.

This simple little story of the manufacturer and the dealer coördinating their ideas and their desires appears human and convincing. Nevertheless, it is astonishing how few manufacturers make intimate friends of their dealers and genuinely endeavor to train and educate them.

"Scratch my back and I'll scratch yours," while jungle ethics, is a primary law in the code of trade.

Waste in distribution is still enormous in this country. It is natural that in practically every economic process there should be some waste. The elimination of as much waste as is possible is the major problem of scientific management.

The waste in distribution in the woolen and silk industries, for example, is appalling. The essential elements of these two important textile industries are much out of adjustment, with a consequent disastrous effect on profits. The woolen manufacturer who carefully selects his raw material in the wool markets of the world and cleans, combs, spins, and weaves this wool into fabrics, artistically designed and styled, should be permitted in all fairness such a profit as would pay him a fair return upon the capital invested in his business. He is unable to obtain such a profit, although the ultimate consumers of the fabrics so manufactured pay a price for them, when made into finished garments, which could amply supply the required margin.

The woolen manufacturer and the silk manufacturer have lost control of their ultimate markets. From seventy to eighty per cent of their products in broad goods are sold to fabricating

manufacturers, known in the trade as cutters-up. These intermediate manufacturers dictate the price they will pay and this price is regulated to conform to the particular priced garments they propose to manufacture. For example, a certain manufacturer of men's clothes prices his entire output at say \$23 a suit. He advertises and sells it to his retail distributor as made of a fine quality of pure wool or worsted cloth and, in consequence, he must purchase such cloth at a price which will enable him to sell his product to the retail trade at the one price named and obtain a predetermined profit.

Exactly the same condition exists in the silk industry. Ready-to-wear garments have placed the control of the woolen and silk industries in the hands of the intermediate manufacturers. The ordinary tailor and dressmaker have largely disappeared. Only a few exclusive tailors and dressmakers with high-priced, hand-made products continue to flourish.

A condition and not a theory confronts the woolen and silk manufacturers. They have been caught in the web of economic reconstruction and are having a hard time of it. The way out of their difficulties is not an easy one to determine. Their problem is to regain control of the distribution of their products, to make their

selling prices and not have these prices made for them by their customers.

It would seem that they must get back to fundamental economic principles in their particular industries and in particular that they must come to a realization that mass production, while possessing many merits, is not the panacea they thought it during the war years. Mass production has undoubtedly a compelling effect upon the reduction of operating and particularly overhead expenses, but, as has been stated, mass production must be supported by mass buying, and mass buying in turn demands the support of marketing systems which shall effect mass distribution. Until this chain is fully developed mass production must be considered as a goal to be attained rather than a current policy. Mass production in the textile industry at present breeds overproduction, and overproduction breeds congestion in distribution, this in turn breeding distressed merchandise and consequent low prices. Bargains are the children of mass production when unsupported by the other links of its chain.

Is it not reasonable to believe that if woolen and silk manufacturers, as individuals, should determine to boil their businesses down to the limitations prescribed by their working capital position, make a sales forecast on the basis of

which they could break even, reduce their expenses to comply with the requirements of such a forecast, concentrate their efforts on producing the best product possible for the sales price fixed, and then adhere rigidly to their price, they would find buyers once more coming to them?

It is better to make no money than to lose money. When an industry is in trouble the first thing to do, if operations are to be continued, is to find the break-even point and cut the expenses to conform to the ascertained requirement. Then begin to build up. Reconstruction must have a firm foundation.

It is a question whether consolidation would prove of permanent value in the woolen and silk industries. They are industries which do not lend themselves to standardization. All the merchandising elements which have been discussed in a previous chapter enter into their products. Style particularly plays a prominent part. Overproduction is their outstanding evil. To cure overproduction each manufacturer must ascertain correctly his costs on the basis of a definite sales volume and pledge himself to sell no part of his product at a loss unless it shall be obsolete material. It does not seem that it would be either wicked or unlawful for him to

intimate to the fellow members of his trade association that so far as he was concerned he knew his costs and had decided to stop doing business for exercise. The power of suggestion and good example is very great.

The value of trade names as a specific aid in marketing is becoming of outstanding importance in these times of bitter competition, especially among the more commonplace staples. The demand made upon research has been to get the particular staple in question out of the old competitive rut, where it was being jolted into insolvency. Research suggested the trade name. Management accepted the idea after much hesitation, advertised the new name of a material as common as wheat, pig iron or coal, a fine-sounding name which lent itself to picturization, color, and human appeal, played the name up through a more efficient salesmanship, and once more found the going smooth.

The trade name possesses a remarkable psychological appeal. The buyer seeks to resist it many times, but is just enough of an ordinary human being to believe that a trade-marked article of merchandise is superior to an unnamed staple. If human nature were not what it is, it would be hard sledding for the distributors of many products.

Advertising is an important element of distribution. It can be made a most effective sales medium if placed wisely after an exhaustive market study. Advertising shot into the air is wasteful.

Advertising to dominate consumer minds has a tremendous psychological effect, especially what is known as institutional advertising. However, the relative importance of this type of publicity as a sales effort cannot be valued accurately. Only the general effect can be appraised.

But advertising applied as a direct means of effecting sales can be valued with a remarkable degree of accuracy. For example, if in a certain sales zone the distribution of a product is showing a definite declining trend, the value of advertising in arresting this decline and stimulating sales can be defined accurately. Its value will appear as definitely in a market where the trend is upward, in the proportion that the upward trend is accelerated.

The great advertising agencies and the publishers of industrial and literary periodicals have recognized the practical value of applied or specific advertising and are studying markets and the various forms of sales effort, even more thoroughly than are producers of merchandise,

in order that they may advise their clients as to how best to influence consumer minds.

In this connection it is interesting to observe that modern advertising is tending to a wording of its appeal so that it harmonizes best with the understanding of the consumers whose demand it hopes to arouse. It has become fairly well established that the advertising presentation which will appeal to one class of buyers will pass completely over the heads of other classes. The great majority of consumers think in simple terms and must be solicited in simple terms. The presentation in advertising of an attractive idea suitable for conception and evaluation in the consumer mind, often will prove more effective than the bald presentation of a product and its price. To lodge in a consumer's mind a thought which may germinate into action is a fundamental motive of good advertising. The most effective advertising is that which induces people to discuss the product advertised. Each product should have its own particular merit worthy of being talked about. To display that merit in a convincing way is the art of advertising.

There is much bunk in present-day advertising, altogether too much. American men and women cannot be cajoled by florid statements, specious

pleading, pretty pictures that convey no message, and other such unrealities.

Every man esteems that stranger most highly who tells him the truth in few words. Advertising should tell the truth in the fewest words possible.

Successful advertising must arouse thought to the point of inciting desire. Once a desire has being, it develops until it is big enough to demand satisfaction. Good advertising sells merchandise. Bad advertising is sheer waste.

All the systems and methods of distribution may be scientific and yet fail if the human being who stands behind the counter or goes forth to sell is ignorant, lazy or lacking in ability to convince. A salesman must know thoroughly the merchandise he offers for sale, be confident of its value, be able to sustain this value in the market against all comers, appreciate the consumer need of it, and possess courage and determination. He must enjoy his work.

Salesmanship is the most important link in the chain of distribution. This is recognized, and traveling salesmen are now being trained in the factories, mines, and stores before being sent out on the road.

The average salesman is a young man who is more fascinated with the joy of living than with

business. The world is before him to revel in and enjoy. He will not admit this to his employer or to his immediate relations, but youth is forever youth. It is the special duty of general sales management to get control of the mind of such a young man and induce him to realize the value of making a success of himself.

In certain instances it seems hopeless to induce salesmen to think in terms of the corporation whose goods they are offering to distributors. They become interested quite easily in the problems of the distributor and appreciate his necessity of buying at the lowest possible price in order to meet competition. They do not appear to realize that their duty is to sell the idea of the corporation they represent to the distributor and endeavor to make him see its point of view as regards quality and price.

Becoming wearied by the complaints of his salesmen as to competitive prices, the executive head of a large corporation caused all the sales prices of his products to be printed on cards which each month were placed in the hands of the trade. He then told his salesmen to go out and get orders on the basis of the intrinsic value of the merchandise offered or go to work for some competitor who would cut prices as a result of their special pleading. This move

proved the best he had ever made. His salesmen are now proud of themselves. They are sellers of merchandise, not of prices.

Scientific training of salesmen is as important as the scientific planning of production or inventory control.

Equally important is the proper remuneration of salesmen. The limited salary and the bonus for beating the quota appear to produce the best results. Every salesman thinks he knows his own worth, but he really arrives at a knowledge of his worth only when he sees its value in definite terms of bonus award. The average salesman reacts unfavorably at first to a scientifically planned distribution of which he is a factor. If he could but learn to coördinate his mental processes with the merchandising, marketing, and distributing policies of the enterprise he represents, his efforts would prove much more effective and he would become a more valuable element in the distributing system.

Substantial economies in distribution are being effected constantly. Buyer and seller are drawing together again in economics if not in space. The automobile industry has demonstrated that it is possible to distribute its products to consumers with only one selling intermediary, the dealer, and to sell for cash. The dealer is re-

quired to carry simply a sample stock; the minimum inventory of finished cars, ready for immediate shipment carried by the automobile manufacturer, is maintained in amount sufficient to keep the dealer constantly supplied. Dealers' sales to consumers are reported to the factory at least every ten days and in many cases daily. The manufacturer is thus in receipt of accurate and timely information from every part of his market as to actual sales and sales trends. Similar results are being accomplished by manufacturers in other lines, with the same profitable results. They who conduct their operations on such a basis require the minimum of invested capital and obtain the maximum of profits therefrom.

Arrangements are being perfected between certain manufacturers and jobbers under which is maintained, in a particular stock book supplied by the former, a running inventory by types, sizes, colors, etc. The traveling representative of the manufacturer inspects this book on each visit, sees what stock is moving and how much of each class of merchandise is required for renewal, his object being to maintain the stock at the lowest amount sufficient to insure a constant supply of goods.

But why the salesman? The jobber should see

that it is as much to his interest as to that of the manufacturer to save this selling expense and he should keep track of the stock himself, notifying the manufacturer daily of his sales and his requirements. This is a new way of doing things, however, and it is as difficult for an old-fashioned merchant to modernize his business methods as for a fat man to give up eating potatoes and butter.

The modern traveling salesman is not keeping pace with the rapidly accelerating movement in marketing and distribution. Perhaps this is not wholly his fault. Nevertheless, it can be predicted with a reasonable assurance that traveling salesmen will be few in number ten years from this time. Buyer and seller, as the rule and not the exception, are going to see the absurdity of paying unnecessary distributing expense. The retail distributing store of the mail-order house is setting a standard of efficiency and economy in distribution that must be met by all its competitors. Moreover, it is evident that the services of traveling salesmen will no longer be required when the mass producing, buying, and distributing chains are complete. The telephone and the airplane will aid in their elimination. And yet their passing is foretold with regret. They were picturesque in the extreme, pioneers

of American trade, brave men, undaunted by hardships, gallant fellows caught, unfortunately for them, in the evolutionary swirl of economics. As a rule they were hard workers, but not thinkers. The salesman of the future will be an executive officer who possesses a comprehensive knowledge of all the elements of scientific management. He will be preëminently qualified to discuss merchandising policies and methods.

The age of waste in human effort and expense is passing. It is no longer a question of the manufacturer and the merchant, wholesale or retail, distributing his products the way he prefers, but the way he must. A highly developed system based upon the law of economics has taken possession of distribution and proposes to dominate it.

The day is coming when the production and distribution of merchandise will be established upon an economic basis, as to both cost and sales price, in a manner similar to the control systems governing the railway and other public service enterprises.

But that day seems far away, and the problems of the present demand speedy solution for the sufficient reason that each year apparently profits are growing less. The answer lies in a coördina-

tion of all the elements entering into distribution exactly as they have been coördinated in successful production.

The outstanding prosperity of the great automobile corporation which is able to produce so graceful and efficient an automotive vehicle at so low a price is due to a coördinated human effort coöperating effectively with a coördinated mechanical effort. In the automotive industry man, plant, and machinery are synchronized. One thought governs. One action results. The thought is to produce the handsomest and most efficient passenger automobile and the most serviceable commercial truck in the price class of each. The action is to accomplish this at the lowest possible cost. Accordingly, executive thought coördinates itself with all the elements of purchasing and production thought. There is one plan, which is a common mind. Whatever interferes with the harmonious operation of this plan is eliminated—man, plant, material or machine. A common knowledge flows through the minds of the heads of divisions and departments, resulting in a common purpose, just as the material in process flows through the several factories resulting in a standardized product.

Now let us suppose that in a similar way in every other industry all the elements entering

into distribution were coördinated with each other and with the essential elements of production. The result would be a flow of knowledge of consumer requirements in quantity, kind, and style from the originating source up through the retailer, the dealer, the wholesaler, the intermediate manufacturer, the converter, the commission merchant, to the producer in such form and so accurate that he could shape his production plans to provide the merchandise when and as specified.

There is one particular industry which would be greatly benefited by such a flow of knowledge, namely, the cotton industry, and the particular product gray cotton cloth. At present the mill weaves cloth in the gray, and this is shipped in bales to a commission agent. The commission agent sells this gray cloth to a converter who in turn ships it to a finisher, one who dyes, bleaches, mercerizes, or prints it. The cloth when so processed is sold to a jobber, a large retailer, or an intermediate manufacturer. If the jobber purchases it, he sells it to retailers or to small intermediate manufacturers. If it is sold to the large retailers, as piece goods, they distribute it to consumers. If it goes to intermediate manufacturers, it is converted into garments which are sold to retailers or it is utilized

for industrial purposes such as the manufacture of boots and shoes, trimmings and linings for passenger automobiles, belting, and other such purposes.

The manufacturer of this gray cotton cloth has no present means of ascertaining what form of merchandise is finally assumed by his product. He does not know who is the ultimate consumer or where he lives, whether in this country or in foreign lands. In brief, he has no knowledge of the ultimate markets in which it goes into consumption. Therefore, he is unable to relate production to consumer demand or requirement. He knows only that demand exists for certain materials whose base is his gray cloth, but as to the extent of that demand he has no definite information. It would seem that as the originator of his product he is farthest away from knowledge as to its final destination. He is in a condition of ignorance and can make no accurate production plans.

The commission agent and the converter are each a step nearer the ultimate market and the consumer, but they too are ignorant of the final destination of the product. The jobber sells to the retailer or exports to a foreign buyer. To him markets assume an appearance of reality, but the ultimate consumer and his wants are

unknown quantities. The retailer sells direct to the consumer, comes in personal contact with him, has an opportunity to converse with him and learn his ideas as to quality, design, style, etc.

Now then, if the retailer were to pass back to the jobber the knowledge he was able to acquire from consumers as to their tastes, their buying tendencies, and their apparent requirements; if the jobber were to translate this information to the converter, the converter to the commission agent, and the commission agent to the manufacturer, then the latter's ignorance of markets and consumer needs would disappear in the bright light of scientific knowledge. He would be able to forecast his sales and properly plan production.

To accomplish this, coördination is needed between all these diverse elements of distribution. It is manifest that such coördination would prove of benefit to each member of the distributing chain and, if it so happened that it should prove an injury to any member of the chain, then that member probably should be eliminated.

All these elements are human beings, seeking to prosper. They are essentially the same type of human beings. They are merchants. It is natural to believe that they think alike as to the

problems of distribution. Each would like to increase his net profits if he could discover a more economical way of conducting his business. It is reasonable to believe, therefore, that if some dominant man in the chain should determine to teach coördination to the other members of the chain, he could become its controlling factor, for he would know best how to evaluate the information which flowed through the chain.

This suggestion is not merely an idea of what might be accomplished through coördination of all the elements constituting a system of distribution. It is a fact in the process of successful accomplishment by certain intelligent distributors at the present time.

A corporation, no matter how large, is still one family. Coördination of thought and effort is easier to attain between brothers than between friends or comparative strangers. The manufacturer and the commission agent do not as a rule love one another. The converter has his own risks to take and his own ax to grind. The jobber, dreading elimination, fights for his own hand. The retailer can see no present benefit from a system of scientific distribution which would do away with distressed merchandise for his bargain sales. He possesses unpleasant memories of older days when the situation was

reversed, when the manufacturer was in the saddle and he walked.

And yet he could be converted to a plan of complete coördination with the various other elements of his chain if some one in whom he had confidence would demonstrate to him the increase in his profits which would result from the economies effected through coördinated distributing effort and from minimum inventories insured as to final disposal by the entire group.

If coördination of thought and effort is the means of low costs in production, surely it is of identical value in distribution. High production costs compelled such coördination when it did not ensue willingly. The law of diminishing returns ultimately will compel coördination and coöperation in distribution.

Chapter Five

THE SALES FORECAST

THE sales forecast evolves naturally from the study of markets and of scientific methods of merchandising and distribution. It is essential to the economical planning of production, for, if one is to plan wisely, he must endeavor to ascertain his income before determining upon his expenses. The ordinary prudent man of affairs estimates his income for a year in advance and so regulates his domestic expenditures that they shall not exceed the income. He appropriates mentally, or more formally in a private budget, certain amounts to cover rent, food, clothing, taxes, insurance, amusements, and particularly savings. As the year proceeds he endeavors to the best of his ability to control his expenses within the limits allocated to each.

If this man had no definite knowledge as to the probable amount of his income, it would be admitted generally that he possessed no foundation on which to base his budget other than hope and the fact that everything came out fortunately the previous year.

Being provident, looking into the future, planning before spending, are elementary principles of common sense. Sales forecasting therefore should not be considered as prophesying or guessing what may happen in the future, but as simply estimating probable sales in units and dollars for a future period of time, after having acquired all knowledge obtainable as to market conditions in relation to the products to be offered for sale in those markets.

In a majority of cases sales forecasting has the assistance of tradition as a guide, but past experience should be used more as a standard of comparison than as data on which to base a conclusion. What has been may be again, but not necessarily. Leibnitz, in his essays on Human Understanding, states this fact clearly and convincingly: "Persons who have become skillful through age and experience are not exempt from error when they depend too much upon their past experience, as has happened to many in civil and military affairs; because they do not consider sufficiently that the world changes and that men become more skillful by finding a thousand dexterities. . . . It is true that reason counsels us to expect ordinarily to see that happen in the future which is conformed to a long past experience, but it is not on this

account a necessary and infallible truth, and success may cease when least expected, when the reasons change which have sustained it."

The world changes and certain business men have become more skillful by finding a thousand dexterities, one of the most interesting of which is sales forecasting, and there is little chance for those who have not become skillful in such dexterities. The tide which brought them in may slip away, leaving them stranded on the beach, and fail to flow again. "*Success may cease when least expected, when the reasons change which have sustained it.*" Were this statement not true of numerous business enterprises at the present time, scientific administration probably would not be receiving the concentrated attention of bankers and business men generally. The world has changed. It is the need of sales forecasting which has added scientific administration to the practical sciences and demanded its employment.

Sales forecasting is inextricably tied into the determining and allocation of sales quotas. The quota gives definiteness to forecasting. It is a task assigned as fair and reasonable. It makes probable that which has been estimated to be possible.

The sales policy of previous times was largely opportunistic. The salesman sold what he could,

where he could, and the home office took his word for it. But when a sales zone is subdivided into districts and salesmen given a quota which they consent to as fair, with a bonus if they beat it, unprecedented order and enthusiasm are brought into selling. If the quota of a salesman for a year is 20,000 units to realize \$200,000; if he estimated this amount of sales himself as possible before the quota was set, and if he knows that the particular amount in units and dollars has become part of the sales forecast of the company he represents, it is reasonably certain that he will think constantly in terms of his sales quota and will not be at peace until he has reached it.

It is essential to sales forecasting: (1) that a manufacturing company shall have a sales policy defining methods of distribution in each sales zone and subdivision thereof; (2) that there shall be ample sales coverage in each such zone and subdivision to the extent of its sales potential; (3) that standards or quotas shall be set for each zone or subdivision by which to measure sales accomplishment; (4) that a list be maintained of all retail salesmen in each sales zone and subdivision and that reports be obtained by definite periods of each man's sales so that the local sales manager and even the general sales manager, through direction, can get after poor salesmen

and compliment good ones on the basis of their performance; (5) that salesmen be trained so as to guarantee the proper presentation of the product and that they shall learn how to estimate properly the sales potentialities of the market in which they operate.

A management can aid in the accomplishment of the last important essential through careful consumer sales research and analysis, determining points inducing favorable opinion and defensive arguments unfavorable to the products. Every salesman can be taught to tell practically the same story in a natural way and this should be the best known story which can be told and which has been tested in actual practice. Sales management, recognizing that a new thought relating to a product is a sales stimulation, should constantly look for new ideas to facilitate sales of the products of the company, and issue bulletins containing these ideas to the entire sales organization so as to provoke thought and initiative.

It is essential that the sales quota should be sold to the salesman if it is to exert the influence expected of it. Being convinced of its fairness he, the human being, ties himself into the forecasting system of which he becomes an essential

part, and, as a result, his efforts are coördinated with the corporate effort.

Doubtless a better understanding of the province in industry of sales forecasting and the setting of quotas will be obtained if a practical illustration is employed.

The X. Y. Z. Company is a manufacturer of mechanical rubber goods, its products comprising rubber clothing, boots and shoes, druggists' sundries, battery containers, belting, etc., its principal markets being located in the United States, Canada, and Mexico.

The president of this company is a modern captain of industry, possessed of a comprehensive understanding of the several major functions of the great enterprise of which he is the chief executive. During the year he has personally visited a majority of the sales branches and agencies and has obtained first-hand knowledge of consumer markets. From time to time the sales research department of the company has furnished him with data relating to methods for stimulating consumer demand in the markets covered by the sales organization and with facts relating to new markets and the adaptability of the products of the corporation to such undeveloped markets. This research information has been studied and criticized by the several

heads of the production divisions, and that found worthy of serious consideration has been distributed throughout the sales organization for checking. An exhaustive study has been made by the statistical department and checked by the field representatives, of financial and commercial conditions, particularly in relation to the business prospects of the coming year. In brief, all the facts bearing upon the fortunes of this enterprise have been ascertained, examined, and appraised.

In November the president causes to be sent out to every branch house or selling agency engaged in the distribution of his products a request for a forecast of sales for the ensuing year by styles and kinds in units, together with a personal letter from himself asking that the most careful consideration be given to this matter and every estimate be made in the light of business conditions in each sales territory and of general conditions throughout the country and the world, due value being placed upon past performance.

This executive request is accompanied by a letter from the general sales manager specifying exactly how the required information is to be collected and prepared, together with printed

forms intended to minimize the difficulty of gathering the data.

The company has a branch sales office in San Francisco covering sales activities in Washington, Oregon, California, Utah, Idaho, Arizona, and New Mexico.

Copies of fundamental statistical and economic data possessed by the home office are in possession of the branch sales manager. He knows his territory intimately, and each of his salesmen knows his particular section of this territory even more intimately. Every possible buyer of the products of their company is known to them and rated as to purchasing capacity, distributing ability, or consuming requirement. The branch manager consults his salesmen individually, canvasses his territory with each, discussing all the pros and cons, then considers judicially the information he has received, takes into account the average yearly growth in each sales zone, evaluates competition, and finally sends in his estimate as a forecast which in his opinion can be accomplished by the San Francisco branch office.

Now let us summarize what had been accomplished up to this point, assuming that each sales division had functioned in the preparation of its forecast as had that of the Pacific Coast.

1. The X. Y. Z. Company, through its special sales research work, plus the intensive market study of its selling departments in the field, has been able to visualize economic conditions in the various markets, to appraise the sales appeal of its several products as compared with competing products, and to determine what the present requirements of those markets are so that it can adapt its products to such special market needs as have been ascertained.

2. Each head of a distributing division has found himself in direct touch with the president of the corporation, who by inference has conveyed to him the flattering message that he is the eyes and the ears of the executive management on the firing line, that he occupies a position of great trust and responsibility, as the success of the entire production program depends upon the accuracy of his estimate of sales by styles and kind of product for the coming year.

Each such man has thought deeply upon receipt of the executive request. He has reviewed the sales of his division for a period of years. He has studied the statistical information furnished him by the home office. He has analyzed and reanalyzed his sales territory with each salesman in turn before committing himself to an estimate.

In addition he has thought intimately of each sales unit of the products manufactured by the company, seeking to determine which are the most profitable in his special territory so as to concentrate upon them in the coming year's sales campaign. He has also reviewed the work of each of his subdivision managers and of the men under them. Briefly he has been obliged to acknowledge to himself that he must possess a comprehensive knowledge of his market and his sales organization or confess inability to make an intelligent forecast.

3. The salesmen of each division have observed the strain their manager is under in the making of the forecast and are drawn into sympathetic appreciation of his problem. They too begin to think into the future and mentally to comb their territory. Sales forecasting does not mean much to them. Of course, if the people at the home office want to know what they think of sales conditions and probabilities, the salesmen have opinions they are willing to express, and if their division manager says to them in open meeting: "Boys, I have sent in to headquarters such and such an estimate of sales for the coming year and I expect you to take off your coats and help me make good," they are all ready to shout, "Sure, it sounds easy and we

will back you to the limit." They think at first that this is all there is to sales forecasting, but a little later on, as shall be seen, they are given another point of view which makes real salesmen of them.

When the sales estimates of the several divisions have been received by the home office and prepared for review and analysis by the comptroller's department, the material is gone over carefully by the general sales manager and examined in the light of his knowledge of conditions in each division and the ability of the several division managers to perform as promised.

Many palpably absurd estimates are discovered. Many estimates reveal a timid division head. On the contrary, the majority are optimistic, being pervaded with the spirit that under normal conditions through the coming year the sales division is prepared to guarantee a substantial sales increase.

Throughout November constant corrections and revisions of the sales estimates are carried on and finally, after being broken down into sales quotas, the forecast is submitted to the president for his decision.

At this stage each unit of the forecast has been priced and its cost determined on the basis of the sales volume as shown.

Now the review of this monumental aggregation of estimates appears to be a herculean task, but the president of the X. Y. Z. Company realizes that this is his particular job and he goes at it like a man, realizing that he possesses information superior to any one else in the company, fitting him to decide points at issue and properly appraise the several estimates.

In his opinion the San Francisco division sales manager is over-optimistic as to sales probabilities for the coming year. He has not given proper weight to certain economic or financial factors which may seriously affect sales in his territory during this period. The president, therefore, writes him, giving all the facts in his possession and requesting a revision of the forecast in the light of the sales quotas as set for his territory by the general sales department. In addition, he states clearly that he will expect performance of the sales estimate as finally accepted for the sufficient reason that failure to perform as promised will affect seriously the production schedule of the company.

Such a request from the chief executive is considered by the division sales manager a challenge of the integrity of the forecast which had been prepared with so much study and care.

He and his confidential associates ponder over this letter.

As they continue to analyze the quotas for the several sales subdivisions as set, they come to the realization that the sales organization on the Pacific Coast has been set a task and that its sales estimates as submitted have been utilized only in facilitating the setting of this task.

They are keenly alive now to the fact that the sales forecast as finally approved by the chief executive is a composite of sales research, market study, and sales estimates. Accordingly, they set to work to adjust their previous estimates to match these new conditions, incidentally discovering that the salesman of a subdivision is sobered observedly by a quota, whereas he was quite chipper when estimating his future sales. He looks his quota in the face as a tangible something he must overcome or his defeat will be known not only to the manager of his division, but to the general sales manager and to the president of the company. He sees his name, William Everett, placed at the head of a sheet of paper and that he is expected to sell in his territory so many hundred dozens of rubber clothing, so many thousand pairs of rubber boots and shoes, so many thousand hot-water bottles and other such articles, so many thousand

pounds of rubber belting, hose, etc. Upon examination he discovers that this quota of his is reasonable enough, and says to himself, "Sure, I can make good." He goes to work like a man. He now knows what is expected of him, so he can make his plans for the coming year.

In the matter of rubber belting, for instance, he knows exactly from the information furnished by the sales research department of the home office how many users of belting operate in his district, who they are, where they are located, what amount of belting they might reasonably be expected to purchase and what his proportion should be.

Of course, if he could get a few new customers or increase the consumer demand for his particular grade of belting, then he would prove to be a superior salesman and entitled to an additional reward. One thing he knows absolutely—that operating under a forecast and a definite quota, his success or failure will come directly to the attention of the general sales manager at the home office and undoubtedly to that of the president himself. The searchlight is upon him, and he cannot escape its rays.

The revised forecast from the Pacific Coast and forecasts from other sales divisions similarly corrected, when received by the president, supply

him with ascertained facts upon which to base his operating plans for the coming year. The general sales management can now establish the final quotas, knowing that the field salesmen, by joining in the revised estimates, have set their own quotas. Its only duty now is to encourage and assist the individual salesmen in the accomplishment of their tasks. Coördination in thought and purpose has been effected throughout the entire sales organization in the making of the forecast and the acceptance of the quotas.

The production department has been informed by the sales department what it should be prepared to produce by months in the coming year so that it can now go ahead and plan its work for the same period.

The president contemplates the merchandising, distribution, and marketing of the products of the company as forecasted. He personally has committed himself to the accomplishment of the forecast, having given it his approval. He now has an excellent picture of his sales organization. He is able to visualize the manager of the subdivision operating in Idaho, and in every other subdivision, for it is easy to remember pertinent facts and exceptional individuals. He is a more competent executive because of the

intimate knowledge relating to his products and his sales organization which he has gleaned from analysis of the forecast.

Similarly, every department head who has had something to do with the preparation of the forecast has learned to think a little more soberly and intelligently because of it, and every divisional sales manager has been drawn close to the home office and has sensed his responsibilities somewhat more clearly. It would seem also that each has had a vision of a great corporate task of which he is an essential part and such a vision is good and profitable in any industrial organization.

It is true that sales forecasting is only painting a picture of anticipated results. It is no more than the architect's drawing of a commercial structure which it is proposed to erect, and yet is a most valuable thing because of the thought expended in its preparation.

Scientific sales planning is a hard lesson to learn; but it is a lesson which must be learned and, after all, it is not such a difficult task if gone about whole-heartedly. There are no obstacles which are insurmountable by a brave man, least of all in business. One step must be taken at a time in sales forecasting, just as in learning to walk. The first step is a knowledge

of markets, the second a knowledge of what will sell in those markets, the third a knowledge of the most direct and cheapest method of placing the goods for sale in those markets. Having ascertained the consumer capacity of markets, what classes of merchandise are in demand by consumers, and what influences their demand, it surely is not difficult to estimate probable sales in units and dollars in any one market. The total of all the estimates will be the sales forecast.

At first thought it would seem to be a gigantic task to forecast the sales for a definite period of the United States Steel Corporation. The ordinary mind cannot comprehend the multiform operations of such an industrial giant. It mines iron ore, coal, and many flux materials. It operates a fleet of steamships, thousands of miles of railway, open-hearth furnaces, blast furnaces, electric furnaces, plate mills, rod mills, wire mills, in fact, almost every form of enterprise having to do with iron and steel.

Such a task, however, would not be as difficult as it appears. Once the complex corporation was broken down into its component parts, it would be no more vexing a problem to forecast the sales of each such entity than that of any comparable enterprise.

General Motors Corporation does a business annually in excess of one billion dollars. Its sales are forecast over a three months' period and every phase of operation planned. Correction and revision of the forecast is made each month, and the forecast of an additional month is made. This great corporation controls its activities with the utmost of refinement in method. Its operations are harmonious. In consequence, its profits are such as to return the income desired upon invested capital.

General Electric Company forecasts its sales over a twelve months' period with remarkable accuracy. This successful company manufactures practically everything in the electrical line from a huge dynamo to an incandescent lamp. It distributes its products throughout the world.

Otis Elevator Company forecasts its sales annually. It would not seem to be an easy task to determine the number and styles of elevators which probably would be used in a year and the portion of these which would be allotted to the Otis Company. It is not one, however, which worries the financial vice-president of this splendid company, who has this particular detail of the business in charge.

American Chicle Company forecasts its sales of chewing gum in the United States, Canada,

Mexico, and Europe with such precision that the president could prepare a balance sheet of the company at any time showing with approximate accuracy its financial condition three months in the future. It would appear almost absurd to state that the market for a particular brand of chewing gum could be determined for a future period of twelve months when consideration is given to the competitive conditions in that industry and particularly to the fact that chewing gum is bought, not sold. It is exhibited on a news stand or in a store for sale surrounded by a multitude of other five-cent confections. The buyer pauses, looks, and purchases. Who is to appraise the mental processes of that buyer and determine what induced him to purchase? The American Chicle Company has discovered the secret. It has developed a dexterity in this regard, and as a consequence it can plan its operations with great efficiency.

The Robert Simpson Company, Limited, Toronto, a large department store and mail-order house, forecasts its sales and controls its operations by a budget based thereon. This successful company is exceptionally proficient in the science of sales forecasting.

Montgomery Ward & Company, one of the largest mail-order houses in the world, with sales

of \$186,683,000 in 1927, forecasts its sales and operates under budgetary control. When one considers the many thousand varieties of merchandise which this company offers for sale at a fixed price in its catalogue, the difficulty of making a sales forecast can be appreciated. Purchases must be based on the estimate of probable sales. The success of this company demonstrates the accuracy of its forecasts.

The corporations mentioned are referred to particularly because of the evident difficulties which would seem to stand in their way when attempting to arrive at an accurate sales forecast. Countless corporations and personally owned enterprises are forecasting sales successfully. Many are simply making progress in forecasting. The science is not acquired in the first year.

United States Steel Corporation, being a manufacturer of many kinds of semiprocessed products which are the raw materials of other manufacturers, is confronted in making a sales forecast by the fact that it has no subjective means of determining the requirements of consumers for the products fabricated from the materials it supplies to intermediate manufacturers.

Other original manufacturers and producers of basic materials are confronted by a similar problem, which can only be solved when in-

formation originating in markets of ultimate consumption flows back through every intermediate channel to the original producer. Such an unretarded flow of market knowledge will greatly increase profits in the future. It is an economic necessity and will come freely in time. The automobile manufacturer studies his market, forecasts his sales, and places purchase orders with the steel manufacturer for the steel required, with the manufacturer of frames for that particular part, with the wheel manufacturer for wheels, and with many other suppliers of materials and essential parts. It is his economic obligation to pass on to these people what he has learned from his study of markets. It is their obligation to give him such information as they acquire. Trade knowledge should become a library for common utilization.

Sales forecasting will continue to baffle and fascinate the business man until that good time comes.

Only the other day the writer was stopped on lower Broadway by the president of the Merchants Association of New York, who told him with the manifest pleasure of an artist who had executed a difficult task that he had forecast the sales of a particular department of his business

at \$400,000 for the full year and that the final results showed sales of \$398,000.

How inspiring is such a statement from such a man in comparison with the reiterated statement doggedly adhered to by such a multitude of people that sales forecasting may apply admirably to the business of General Motors Corporation, General Electric Company, Montgomery Ward & Company, American Chicle Company, and that of the president of the Merchants Association of New York, but it will not apply to theirs.

Sales forecasting applies to every business and every industry, and the more complex the business and the industry the more necessary is its application.

Chapter Six

PRODUCTION PLANNING

THE architect who is commissioned to plan and supervise the construction of a large modern commercial building first plans and creates the great complex structure in his mind. The owners have told him the amount of floor space that shall be required and the probable rental value per square foot of such space. He knows, therefore, that in planning his building he must work within certain definite limits to the end that the completed structure shall justify its existence on a sound economic basis. But before he plans, he thinks intently until he obtains a comprehensive mental picture of what he desires to accomplish.

The production manager of an industrial enterprise must so think before he plans, visualizing in his mind an entire year's operation in its relation to the operations of other years and to all the elements of the sales forecast before actually planning it on paper.

For the purpose of illustrating production planning let us continue the case of the X. Y. Z.

Company, engaged in the mechanical rubber business, which made the sales forecast described in the previous chapter.

The president of this company has before him early in December a detailed forecast of sales in units and by classes for the coming year, with cost and sales prices.

He is now in a position to draft a balance sheet showing the assets and liabilities of the company as at the end of the coming year together with an annual operating statement.

Accordingly, he can visualize his working capital position as of December 31 of the coming year and contemplate the estimated net profits not merely as something visionary, but as a real probability largely within his control, for the basis of his estimates as projected is a sales forecast made after exhaustive market study and checked by the sales organization.

To emphasize the immense importance to executive management of being able to forecast the working capital position of an industrial enterprise a year in advance, the actual case of the M. A. R. Company is cited. This company is in an industry suffering from overproduction. Competitive prices change hourly, and every price quoted entails a loss. Ruin stares the weaker companies in this industry in the face.

The struggle has degenerated into one for bare existence. The M. A. R. Company is one of the largest and strongest in its particular field, but it looks forward to the coming year with apprehension, knowing that if it holds its customers and keeps its organization intact it is going to lose a great deal of money. All the obtainable skill in management cannot prevent this if prices continue at current levels. How low dare the company go in contracting with large buyers of its products? It can lose its depreciation allowance and still maintain its current asset position, but if prices fall so low that the depreciation percentage is swept away, then the company will be giving away cash. Therefore, it is imperative, that it plan its production schedule for the year in relation to sales price so that it shall know all the time what its financial position is. It must weigh volume as against selling price, for volume minimizes overhead. It must forecast its sales, determining upon the greatest volume it dare take and lose the least money, knowing that when the storm blows over it will not be obliged to repurchase its customers. Accordingly, it makes not only one plan, but several plans based on various sales estimates, casting aside any thought of a scientific sales forecast because it knows that its

industry is in a condition of warfare and price alone will count until the struggle is over. At different rates of production and at various sales prices, it discovers the strongest position it can occupy and then plans to make its fight from such position. The executive is prepared, with the plan of campaign under his eyes, to take advantage of every opportunity, to advance in one direction and retire in another, and every succeeding month he knows more accurately if his controls are working all along the line. His goal is the profit and loss figure shown on the estimated operating statement as at December 31 of the coming year. The production, sales, and administrative organizations are thus enabled to work together as a coördinated unit in support of the common plan.

If, therefore, a knowledge of the end of a year at its beginning is of such inestimable value to an industrial enterprise in a period of such competitive demoralization as has been described, surely such a concrete perspective is of great value to a successful enterprise operating under normal competitive conditions where sales forecasts can be made as accurately as was that of the X. Y. Z. Company, to a further consideration of whose fortunes we now return.

It is well in every form of business to have a

yardstick with which to measure operating results. The operating statement developed from the annual sales forecast furnishes such a standard of comparison when broken down into a sales dollar. This standard sales dollar represents the percentage which each item of expense, together with the item profit or loss, bears to each dollar of sales. It represents the standard set for the year and can be used monthly or oftener if desirable, to compare current performance with the annual estimate.

The monthly sales of the products of the company in units and classes having been ascertained, the first problem of the management in charge of production is so to plan the manufacturing processes that the most constant flow of materials in course of production shall be maintained. Naturally the sales are seasonable, certain products being marketable at one period of the year and other products at various other periods. A flow sheet must be prepared for each class of product. This again illustrates how simple a complex schedule really is when broken down into classes and each class treated as if it were the sole product of the company. The flow sheet of each class will exhibit a series of peaks and depressions. The composite flow sheet of the production schedule must be so

planned that these peaks and depressions are ironed out in greater part and that the line of production shall vary from a straight line only in so far as it indicates a trend in excess of production as planned or a decrease in production requirements.

The hand-to-mouth system of buying requires that the X. Y. Z. Company shall maintain at all times a stock of finished merchandise in warehouse for quick delivery service. The company desires that this inventory shall be maintained at the lowest level in amount so as to maintain a constant source of supply and yet one that shall represent the minimum of requirement. This minimum inventory of finished merchandise is to serve as does a float feed in a carburetor, regulating both the intake and the outlet, balancing consumption and production.

It is of the utmost importance that production should be maintained on a constant level in the interests not only of operating costs, but of the factory organization. A certain major percentage of every working force can be classed as reliable. The turnover is comparatively low. In a minor percentage of the working force, on the contrary, the turnover is high. The employees in this section may be designated as extra labor that floats from one job to another.

The wise production manager will seek to plan his production schedule so as to employ constantly his reliable employees, hiring and discharging the floaters from time to time as occasion demands. It will be recognized even by those not skilled in factory management that such a control of labor turnover is most important.

It is undeniable that many excellent workmen often get caught in the swirl of economic conditions and for a time are classed as surplus labor, but in time they are sure to attain a condition of permanency in employment, for business must become bad indeed when work cannot be found for the key labor of an industrial enterprise.

Just as the sales in units and dollars by classes are charted by months for the operating year in a similar way production in units and dollars by classes is chartered.

It is not customary to budget in detail the entire year, but to determine upon a certain definite period for complete budgeting. Such a period is generally that represented by one turnover of active inventory in terms of sales. Usually this is a three months' period, as is the case with the X. Y. Z. Company.

An actual detailed budget is developed cover-

ing the first three months of the year and when completed releases are made to the purchasing department for the materials and supplies required together with the time they must be on hand to go into production.

The purchasing department has in stock at the beginning of the budgeted period a certain inventory of raw materials, supplies, and semi-processed goods. It has under purchase commitments other raw materials and supplies due to arrive at definite forward periods.

It compares the materials and supply requirements of the budget with its inventory as described. It has knowledge of the length of time purchases must be made in advance of each class of material to insure its delivery at the required time, and therefore it looks somewhat in advance of the three months' supply definitely needed. It then issues purchasing orders for such materials and supplies as cannot be furnished from the inventory.

If a surplus of materials and supplies exists in the inventory over and above the requirements of the production schedule as budgeted and the forecast commitments, what is the nature of such inventory?

This is one of the most important questions

that scientific administration has endeavored to answer within the postwar period.

Inventory on hand or under purchase commitment, that is not demanded by the budget as set for a definite turnover period, is plainly either excess inventory or obsolete inventory. If excess inventory, it can be absorbed in the production schedule in a future budgeted period, but if obsolete inventory, it must be segregated at once, examined carefully, and when no longer a doubt exists as to its obsolete nature it must be disposed of at the earliest moment possible.

All excess inventory in these days of rapid merchandising changes may fairly be considered semiobsolete inventory. It is well so to regard it in any event as it is in danger of becoming inactive.

Excess inventory, semiobsolete inventory, and obsolete inventory have kept many a good corporation poor. They have been the "skeletons in the closet" of many annual statements, suspected and feared by bankers, credit destroyers, more poisonous because of their moribund characteristics than if they had been junked and written out of surplus years ago.

These three dangerous forms of inventory can creep into the stock of finished merchandise known as the minimum finished goods inventory

quite as easily as in that controlled by the purchasing department. Every month it should be analyzed and scrutinized for the purpose of determining whether it is turning over as per schedule.

The X. Y. Z. Company has perfected a simple plan of checking its minimum inventory of finished goods in units by classes. As an illustration let us suppose that it forecast sales for the year of one million pounds of rubber belting six inches wide, the sales requirement for which is fairly constant through the year. On the basis of experience the company knows that it should keep in stock ready for prompt delivery 100,000 pounds or a little more than one month's estimated sales. However, owing to a sharp decline in orders during the last two months of the preceding year it had on hand on January 1, 125,000 pounds. Therefore, it plans to produce, during the first three months of the year, 70,000 pounds in January, 70,000 pounds in February, and 70,000 pounds in March, or 210,000 in all as against an estimated sales requirement of 250,000 pounds for the period, reducing its minimum inventory of finished stock as of March 31 to 85,000 pounds, being desirous of feeling its way carefully into the new year and knowing that it is much easier to increase production

than sales. If during the three months' period the sales are 75,000 pounds in January, 80,000 pounds in February, and 85,000 pounds in March, a definite upward sales trend is evidenced, and production is accordingly stepped up in the next three months sufficiently to take up the shortage in the minimum finished stock, and to provide for the additional sales requirements as evidenced by the trend.

The control of inventory through a planned operating schedule intelligently budgeted is one of the higher accomplishments of a management following the new way to net profits.

Planned production, as outlined, not only furnishes a method for controlling inventory in amount, but determines definitely when materials are required so that orders can be placed with suppliers so intelligently that materials shall be received as needed. When one visits the factories of certain well-managed corporations he sees the reception of raw materials equivalent in amount to the finished products shipped. A manufacturer of automobile frames has so balanced receipts with shipments that the sheet steel from which frames are made is conveyed direct from the car through the inspection department to the hydraulic presses and the other processing machinery in a constant

flow until it emerges a frame, painted and ready for shipment at the loading station, all within a few hours.

A manufacturer of medicated cotton gauze has several spinning and weaving mills in the South, with a bleaching and finishing plant in New England. His production schedule is planned so accurately that carload shipments of the woven fabric arrive at the finishing mill on the day they are required. A small minimum inventory of the fabric is maintained at this latter mill just sufficient in amount to provide for accidents and unforeseen delays. This particular enterprise plans and accomplishes a continuous flow of material from the cotton planter to the ultimate consumer without congestion at any point. In a highly competitive industry its net profits are the result of efficiency, not of fortuitous market conditions.

No matter how carefully and intelligently a sales forecast is made and production based thereon is planned, unforeseen events arise from time to time that would affect successful operation unless every function were maintained in a condition of flexibility. The production schedule must be planned with the thought that it may be changed quickly. In fact, the budget is rigid only for one month of the three. If

economic conditions change within the month and the sales trend varies appreciably as has been stated, a revision can be made of all estimates, and when the budget is made for the fourth month at the expiration of the first, all necessary adjustments can be made. Thus control through correction can be constantly maintained.

As soon as the production budget has been made and purchase requirements released, the treasurer is in a position to set up his cash budget. This is a simple matter. The production budget informs him as to the cash requirements for materials, supplies, labor, etc., for the budgeted period. He knows the cash and receivables he has on hand. Therefore, he can make his financial arrangements for the period with great accuracy. His budget will tell him the cash and receivables he will have on hand at the end of the budgeted period.

In a similar way the general administrative department can plan its expenses so as to comply with its budgeted allotment.

The X. Y. Z. Company now has forecast its sales after a comprehensive study of markets, related its diverse products to consumer requirements, determined upon the most economic method for the distribution of its products, planned its production to balance with sales

requirements, and made its cash and administrative budgets to conform therewith.

From the president down, every department head has before him a complete and graphic picture illustrating the corporate task. When operations are commenced each will see quickly the points at which jams occur in the sales and production schedules, and attention can be concentrated on the breaking of those jams. The rate of turnover of each item of production will be visible, and the executive management can learn quickly which items to stress and which to slow up on or discard.

Mention has been made of an enterprise manufacturing automobile frames which had been able to effect a remarkable turnover of active inventory owing to excellent scheduling. This particular company affords an outstanding illustration of scientific planning in the designing, construction, and operating of its great automatic frame plant which is a mechanical marvel.

The president of this company several years ago observed the efficiency of the automobile manufacturers and came to the conclusion that unless he could manufacture frames considerably cheaper than the automotive industry could produce them, he would have to go out of business. Thereupon he set to work in association

with a selected group of engineers to design a frame plant whose entire machinery would be in effect one coördinated and synchronized machine, a machine which would be automatic, its only human attendants being expert mechanics plus a few ordinary laborers.

After several years of intensive study such a plant was designed and its cost estimated. The plant was to produce several thousand frames a day and the cost ran into the millions. The company's bankers were staggered at the estimates. They were asked to provide funds for a gigantic building with machinery, the like of which was unknown. Nevertheless, they had faith in the president of the company and provided the necessary funds.

The day came finally when power was applied to the great complicated machine. It worked! Its iron men located along the huge parallelogram which was the machine, moved in and out and functioned as required of them, placing and pinching parts with their almost human fingers. At one point all the rivets were shot into place in each frame by air machines and when the frame had progressed a few feet farther these rivets were set in the same moment by a miracle working mechanism. The frame continued in motion, touched here and there by an iron man

as required, until it came to the end of the line where a hook was waiting for it. This lifted and conveyed it through the painting bath and drying oven, whence it emerged into the shipping room ready for delivery.

The planning of production resembles the scientific processes of this remarkable achievement in many particulars. It too comprehends the exhaustive collection of data, intensive thought, constant synchronized movement of material, elimination of unnecessary labor, its master motive being the coördination of thought and effort.

The president who conceived, designed, and constructed this automatic frame plant had nothing to guide him but the facts he was able to acquire. His plan was not flexible. It had to work.

He who plans production has both acquired knowledge and tradition to serve as guides and it is of the very essence of his plan that it shall be flexible, adapting and adjusting itself to unforeseen circumstances.

Planning is instinctive in every human being. People not only plan, but they love to plan. Forecasting is a difficult mental exercise requiring the compelling influence of the will. Planning is a natural function of the intellect.

He who discusses scientific sales forecasting can count upon a skeptical audience, but every one will admit that planning a year's operation is sound common sense. The reason is a simple one. Forecasting in business is something new, while every man has planned as far back as the story of human existence goes. The farmer in the winter, or even earlier, plans his next season's crop. In this field he will sow wheat, in this barley, and in this oats. In the five-acre lot back of the orchard he will plant potatoes, and in last year's wheatfield he will plant corn. This field will be fertilized, and that field will be summer fallowed. It is a joy for him to lay out his work and plan so that everything will be ready at the appointed time.

Planning production—there is nothing new about that, but so planning production that it shall always be kept in balance with consumer demand is quite a new thing and something well worth considering.

In conclusion this should be said of planned production. It results not only in profitable operation but in reliable service, for it enables the sales department to guarantee deliveries at the time specified. It has a compelling influence in increasing the efficiency of the whole organiza-

tion from president to night watchman. Everything is arranged. In time a planned and controlled operation becomes a custom, efficiency a habit, and red ink an unusual color in the production picture.

Chapter Seven

BUDGETARY CONTROL

THE control of expenses as planned in the budget is a function which executive management cannot shirk by delegating it to a subordinate, for he who controls a budget properly must possess the authority which should accompany such a responsibility.

The budget is a brain on paper, which can only be made intelligible by the will of management.

It is not a compilation of corporation statistics and estimates for clerks and junior officials to play with and adjust. It is at once the compass and the chart of a business. No one but the chief navigator, the executive manager, may adjust or change it after it is once set.

The homemade budget is always the best budget. While the fundamental principles of all budgets are the same, a particular budget should be made to fit a particular business. The business should not be distorted to adapt itself to the budget.

Outside experts are not absolutely essential in

the installation of a budget and in its operation, but they can be helpful.

If the executive head of a business considers himself too important and too busy a man to spend time formulating, charting, checking, and controlling a budget, then the budget should not be installed. Such a man prefers to sail his ship by his wits and the stars. A budget would confuse him.

An Oxford professor discussing an entirely different subject, life, has described budgetary control in words upon which it would be difficult to improve. "Every Life is a work of art shaped by the man who controls it. According to the faculty of this man will be the quality of his work and no general rules can supply the place of his own direct perception at every turn."

In instituting the budgetary system it is of the utmost importance that each department head who has to do with its compilation and operation shall understand it, appreciate its helpful qualities, and believe in it. Otherwise it will be resisted, called obstructive, unnecessary red tape, useless labor, and the like.

Intensive thought is required in order to conceive its splendid possibilities, and human nature will always be human nature. Thinking has never been a popular pastime. It is con-

ceivable, however, that in some future time youth will be taught that the most intense pleasure that can be experienced by a human being is the sudden conception of a new thought and that even the grasping of an idea already known which, like a random butterfly, has eluded the pursuer, provides a rare satisfaction.

The average sales manager does not like to make an exhaustive market study and sales analysis. He is forced to put down in black ink on white paper a sales estimate for a particular period and he knows that he will be expected to perform on the basis of his forecast. Each branch manager feels that the sales analysis is a high-powered searchlight directed on his division. He resents being compelled to evaluate sales prices, in brief, to project his mind into the future, think intelligently, and reduce his thoughts to an intelligent opinion.

The chief executive himself hesitates at first to base his operating plans on a sales forecast even though prepared by his own sales organization. He confesses his lack of confidence in the forecast and he will have no confidence unless he visits the several sales territories himself, evaluates each branch manager's and each salesman's predictions, and arrives at an intelligent personal opinion of what is happening

on the firing line. It is inevitable that for the first few years, during the installing of this system of control, the chief executive will so visit the sales territory and intimately study sales conditions. From so doing, he will become altogether a more valuable chief executive. When he discovers that the troubles of the lone salesman, out front where the orders originate, are his troubles, sympathy and support will be born. In time he will weld himself into the sales department and thenceforth will never free himself from looking ahead, wondering what potential buyers are thinking about and endeavoring to outthink them.

The production manager resists the system. He must prepare monthly an operating schedule based on the sales forecast and set down in exact terms the cost of materials and supplies demanded by the sales allocations, together with the direct labor cost, the indirect labor, and the manufacturing overhead, item for item, in exhaustive detail. He will remember how easy it was in former days to lump those details and estimate totals as 100% or 150% of the direct labor cost. Moreover, he has to do this work himself. He is personally responsible for the operating schedule, and always in his mind is the haunting thought that each month his

operating cost forecasts will be checked by the executive manager item by item. Does he know how to control his operating costs? Inevitably the monthly comparison will demonstrate the matter, and if he is inefficient it will be so proved on paper in his own handwriting.

The manager of the purchasing department particularly resists the system. He has on hand a quantity of excess material, semiobsolete and obsolete stuff of which he is dimly conscious, and he realizes that when he is compelled to present his inventory in the light of a definite three months' inventory requirement, accurately balanced as to parts, and to set up under the head "For Liquidation Through Future Operating or by Immediate Scrapping," such inventory as is not required by the operating schedule, he will be called into the executive manager's office and toasted over an exceedingly warm fire.

The advertising manager will resist the system, as he will have to confine himself to an appropriation for advertising limited to a definitely determined percentage of the sales volume as forecast and he will be required to allot this advertising on the basis of the facts as set forth in the sales analysis. In doing this he will discover, and he knows his chief also will discover,

that he has been doing too much advertising in certain national publications when the sales analysis demonstrates convincingly that the sales are sectional, or vice versa. Moreover, he will be expected to check monthly the effect on sales of his advertising placements. He too will be under the searchlight of the system, and he knows it.

The treasurer, or office manager, will resist the system because he too will have allocated to administration and general expense a definite percentage of the sales dollar beyond which he cannot go.

There is no escape from it anywhere from the chief executive to the office boy. There are only one hundred cents in each dollar of income, and each cent of expense must pull its fair share of the dividend load or be squeezed out of existence.

It is manifest that a system which by its very nature shall make every department head his own chief cost accountant and compel him to operate his department within definite bounds, or give a very intelligent reason why not, is a system of almost incalculable worth and merit.

It will be wise, however, on the part of any management considering the installation of such a system of operating control, to realize that to make it effective, it must be believed in and

receive hearty coöperation from all department heads throughout the organization. It may take time to convince these heads of departments and divisions that such a system is good not only for the business, but for themselves as individuals. This can be accomplished by demonstrating to them that it will enable a good man to show his ability and bring his performance directly to the attention of his chief executive. It is undoubtedly true that it will likewise reveal the inefficiency of an inferior man and the sooner such a man is discovered and replaced, the better for any business.

The sales dollar is the satellite of the budget. It is the yardstick employed by a management to measure, compare, and control expense.

The possibilities in budgetary control which play about the sales dollar are practically unlimited.

A current operating budget exhibits annual net sales as forecast and allocated monthly for the budgeted period. Under the heading "Cost of Sales" are revealed the amounts charged to each item under this heading—*i.e.*, material, labor, indirect labor, variable manufacturing burden, constant manufacturing burden, sales expense, advertising, administrative expense, general expense, Federal taxes, etc.

The sales dollar expresses each of the constituent elements of the cost of sales as a per cent of the net sales. In other words, it indicates in cents the amount of each dollar of net sales which has been expended for account of each item of cost as above designated.

The sales dollar is a hard taskmaster. It sets objectives, and the setting of objectives, as to both the time and the cost of respective operations, demands attainment.

There is apparently an excellent reason why the sales dollar should be a hard taskmaster, since at its side stands always the standard or master sales dollar of the year, and under the severe terms of budgetary control, it is required that every deviation in percentage from the master sales dollar shall be explained.

To illustrate its control, let it be supposed that the required budgeted profit on each dollar of sales is ten cents to meet the predetermined percentage return on gross invested capital, and that when the operating sales dollar is set up it is found that seventy cents of each dollar of sales is required to meet manufacturing costs, and twenty-two cents of each dollar of sales has been allocated to meet selling, advertising, administrative and general expense, and Federal taxes. It is evident that only eight cents remain

for profit. Now there exists no known method of physically forcing a ten-cent profit into an eight-cent space. Therefore the operating executive must recast his sales dollar. In the event that he cannot reduce direct manufacturing cost below seventy cents, he must study and analyze the controllable items, such as variable manufacturing burden, selling, administrative and general expenses, in an endeavor to effect a saving sufficient to supply the required additional two-cent profit.

It is surprising how often the specific statement of a requirement of that sort brings the desired result. The sales dollar makes the specific requirement known definitely and positively so that the head of each department of the business can reanalyze the expenses of his department and contribute his proportionate amount to the saving that must be effected.

The relating of expenses to a forecast income from sales, by the executives and heads of departments, necessarily must draw these persons' minds to the inevitable conclusion that their primary duty, no matter what their position, is to see that a profit results from the operation of the business.

The budget does not stress how much business

can be done, but how much money can be saved for profits.

The profit item is the one detail of a business in which its owners are particularly interested. All other items of the sales dollar are representative of cost.

An operating management needs, now and then, to be reminded forcibly that the primary object of a business corporation is not to provide salaried positions for a group of executive officers and department heads, but to earn dividends for its owners.

The sales dollar emphasizes the importance of maintaining the integrity of the profit ratio by refusing to consider that the forecast profit is amenable to revision downward.

As Joe Weber would have put it, the sales dollar tells one without any waste of words whether the business it represents is a "pay in" or a "pay out" proposition.

Ramifications of the sales dollar extend into the most obscure corners of operating costs. Constant inquiry is provoked as to possibilities of reducing certain costs through time study, the study of manual dexterity of the operative, the speeds and feeds of machinery, its proper alignment, the setting of labor rates, the utilization of conveyer systems, the installation of new processes effecting economies in the production

of power, and in particular the study of labor turnover, the reduction in which has proved so notable in decreasing costs and at the same time increasing production.

The sales dollar provides an exact method of subdividing the atom of costs into its electrons and of putting these electrons under a powerful microscope for intimate examination. The days of small profits are drawing near, but scientific administration is moving forward faster than the decline approaches.

There is a secret gold mine in budgetary control which a select few have discovered and are mining profitably.

The following illustration should enable even the fairly intelligent prospector to locate it.

Let us say that a certain manufacturing corporation budgets its business for a year on a sales forecast of \$10,000,000 so that a profit of ten per cent shall be realized. Materials, direct labor, and other costs which vary with volume are seventy per cent of the sales dollar, leaving a thirty-per-cent spread to cover standard non-variable costs and profit.

The volume of actual sales for the year is \$12,000,000. Standard costs throughout the year remain constant. The spread on the additional \$2,000,000 sales is still thirty per cent,

but it is all profit. The percentage of profit realized on the total sales is sixteen per cent, instead of ten per cent, a profit of \$600,000 having been earned on the additional \$2,000,000 sales.

Had the increase in volume been thirty-three and a third per cent instead of twenty per cent, the corporation would have earned on the additional \$3,333,334 as much as on the original \$10,000,000.

No one appreciates more the practical helpfulness of the modern business budget than the man who is charged with the responsibility of reorganizing a poorly managed, unbalanced, and unsuccessful manufacturing corporation.

When the affairs of such an enterprise are first submitted to his inspection he contemplates the proposition much in the same way as a watchmaker regards a watch which is handed to him with the remark that it does not keep good time and appears to be out of order.

The watchmaker, as is well known, invariably opens the case and examines the works through a magnifying glass for the purpose of ascertaining whether the cause of trouble can be discovered quickly. Finding that certain of the pinions are loose and the watch dirty, he requests that it be left with him to be thoroughly overhauled and repaired. He then proceeds to disassemble the

timepiece, placing each part carefully on the worktray before him, and examines each wheel, gear, pinion, spring or jewel through a microscopic lens that he may discover which parts are worn or out of order. When the necessary repairs are effected the works of the watch are reassembled and he hangs it up, after winding and starting it, for daily observation and correction.

The owner of the watch seldom ventures a suggestion to the watchmaker when it is given him to examine and repair, but the executive management of the unfortunate corporation has many explanations to offer in accounting for its unprofitable condition. Economic conditions, in the industry of which this particular enterprise is a part, are bad. Raw material costs are high, selling prices low. Competition is keen. Overproduction is manifest. Hand-to-mouth buying prevents economical production. Distributing costs have increased, etc.

The reorganizer listens attentively but formulates no opinion. He requests simply that financial statements with supporting details, covering the previous five-year period, be given him. These he examines and analyzes carefully. Then he inspects the plant and machinery, observes the general appearance of the property,

personnel, and product, perceiving things but formulating impressions only. He knows that he will have to construct a budget and put it in operation before he can venture upon an opinion.

His first step in budget making is to ascertain what amount of sales can be anticipated reasonably in units and dollars within a yearly period. In directing and overseeing the making of the sales forecast, he estimates the character and quality of the management and sales organization. Nothing could give him so accurate an evaluation of these elements of the business as the manner in which this task is performed. It reveals what the management and sales force know of the markets in which their products are distributed and their ability to estimate probable sales in those markets.

With past sales performance as a guide and appraising the estimate prepared by the sales organization at what he considers to be a conservative value, he arrives at a forecast to use as a basis for an operating budget. Every department of the enterprise is brought under critical inspection as this budget is prepared and on its completion he is able to arrive at an intelligent opinion as to whether it is reasonably possible to operate the business at a profit.

If after exhaustive analysis and revision the budget cannot demonstrate that the products of the corporation when sold will produce an income sufficient to provide a fair profit and cover all the expenses of operation, he realizes that liquidation rather than reorganization must be considered.

Again, the budget furnishes him with the data to determine whether the creditors and stockholders of the corporation would fare better by continuing operations even at a small loss rather than incur the serious expenses of a shutdown.

When a company is moribund the budget reveals the fact in a way which cannot be disputed. It demonstrates just as clearly whether a company possesses the potentialities of a future success, no matter how badly its present condition is out of balance. Many manufacturing concerns in this country at the present time are in successful operation with a promising future due entirely to the presentation of a budget to their bankers at a period in their past histories when the possibilities of a receivership impended. The budget said to the bankers much more emphatically and convincingly than the human beings who prepared it, "I give you definite assurance that if a continuance of operations is

permitted I shall control the expenses as set forth. I shall liquidate excess assets as agreed. On such and such days I shall provide sufficient funds to liquidate a certain amount of the obligations you hold. Put an honest and brave man in charge of me and I shall produce the results approximately as set forth."

Bankers are trained to deal with facts. The budget deals with facts. It is true that it makes promises, but it demonstrates in a reasonable way how these promises shall be made good.

It is altogether an invaluable asset of management. To one who has seen much of the seamy side of business it appears an essential particularly of small enterprises in which the expenses may so easily consume the profits and which cannot afford management of the first class. In such cases the budget is a wall of defense built round them.

Scientific administration has many attractive features but none more so than the budget. It is the one essential element which embraces all the others.

Mr. Alfred P. Sloan, Jr., president of the General Motors Corporation, in submitting the budget covering the administrative expenses of the corporation for 1928 to the finance committee, stated:

“The budget system has now been in effect for four years and the results obtained and the control afforded under the plan have established the wisdom of such a system and the desirability of its continuance. Expenses have been allocated to the proper accounts and the expense of the Corporation proper has been controlled in a much more satisfactory manner than it would have been without a budget system. In order to justify the continuance of the budget system I again repeat my position regarding the following points:—

“(1) Any expense authorized should result in a direct profit to the stockholders, or save a sufficient amount to offset such expense.

“(2) Any expense must be necessary from the standpoint of in some way protecting the interests of the stockholders.

“I feel that up to the present time the budget system has met these requirements.”

Mr. Sloan has kindly permitted the above quotation to be inserted in this place.

Nothing could be said in commendation of the value of the modern budget in business which

would have greater weight than the above statement from so high an authority, even though it applies only to a budget of administrative expenses and not to such a general budget as has been discussed in this chapter.

Chapter Eight

MANAGEMENT

THE stockholders of an industrial corporation elect directors, as trustees, to conduct the operations of their business. These directors delegate that portion of their authority known as executive, to a president and in association with this president agree upon certain rules which are to be adhered to as nearly as is possible in the proper conduct of the business. These rules constitute the policy of the corporation.

It is true that many boards of directors fail to appreciate their obligations to the stockholders they represent and delegate the formulation of corporate policies to the president and other executives. Such directors exercise only a nominal function in management, being content with such meager information, statistical and otherwise, as the president deems it necessary to give them. Being docile, they take only such action as is required by corporation law.

The failure of directors to recognize fully their responsibilities as trustees and to inform themselves thoroughly as to the operations of their

corporation is, to-day, one of the outstanding evils of corporate management.

Directors are not chosen primarily because of their special ability as wise advisers or for being diligent and inquisitive, but, in too many instances, because they represent large holdings of the corporation stock and in certain other cases, by no means exceptional, because they are friends and supporters of the president.

It has been suggested, as a result of flagrant examples of corporate mismanagement, that directors be paid salaries commensurate with the responsibilities they assume and be held accountable in honor, if not in law, for a faithful and intelligent performance of their duties.

There are in this country several notable instances of corporations whose directors are intimately informed as to their operations and who not only formulate corporate policies but see to it that these policies are adhered to by the executive management. Such directors do not minimize initiative on the part of their executives but, on the contrary, encourage it.

The president of any corporation, if he respects the advice of his directors and welcomes their coöperation, is several times a better executive because he realizes that he has the approval and cordial support of a body of friendly associates

no less intelligent than himself, even if they do not possess his technical knowledge.

Granted, therefore, that an industrial corporation has a competent board of directors, these trustees of the stockholders should recognize as their primary obligation the formulation of a corporate policy and then elect executives to carry this policy into effect.

A corporate policy is divisible into elements having to do with management and the proper remuneration of efficient executive officers, with production facilities, products, the pricing of products so as to insure a proper return upon invested capital, marketing and distribution, research, finance, dividend distribution, growth, labor, pensions, group insurance, and other similarly important matters. It produces order in a business organization, defines what is to be done and the way it shall be done.

No corporate policy can be rigidly adhered to. The policy of a corporation is no more than an intelligently devised code of corporate regulations. Executive management is expected to be honest and efficient, not perfect. If it can demonstrate that the corporate policy as to any individual element can be improved upon, it will find its directors amenable to reason. The unchangeable character of the laws of the Medes

and Persians does not apply to modern corporate procedure.

Nothing that has been said as to the duties and obligations of directors should be taken as detracting from the essential importance of the chief executive officer of a corporation. In the last analysis he is the captain of the ship.

Scientific administration demands as the head of an enterprise an intelligent, active executive who possesses a comprehensive knowledge of the industry in which his particular business is placed, who knows the technique of administering and controlling the operations of his company, who appreciates the value of commercial and industrial research, who is at all times a forward-looking man, not necessarily a genius or one gifted with extraordinary ability, but a man of sound judgment and good common sense.

It requires that such an executive shall possess the ability to delegate authority to his associates in management and at the same time to instill in their minds the fact that responsibility of performance accompanies the authority delegated. It further requires that he shall possess a broad humanity that will enable him to exercise authority, not by mandate, but through gentle reason, thus inspiring his organization

with respect and that affection which is the due of a natural leader and teacher.

Scientific administration is merely a system until such an executive breathes into it the breath of life and makes it vital. The system and the master man are essential to each other.

It is evident, therefore, that exceptional ability is demanded of the chief executives of the great corporations which are now so common in the United States. The responsibilities of such men are very great, it is true, but they are minimized if junior executives, heads of divisions, department heads, and even overseers are taught to think of themselves as what in reality they are, *viz.*, each a chief executive in his degree and proper place in the organization.

A planned operation makes possible such a desirable result. Each officer and each subordinate official who has charge of an operation which appears as an item of cost in the sales dollar is efficient in so far as he is able to perform the task set for him at the expense allotted to it. He becomes worthy of executive attention and promotion when consistently he beats his particular section of the budget. All of which is easy to write, but mighty difficult to perform, and yet it can be accomplished in a very simple way.

The success of this plan lies in promotion or

reward for the continued accomplishment of a set task. The task may be only to direct and control the operations of a gang of unskilled laborers. If the overseer in charge of this gang inspires his men with a belief in his fairness to them and his sense of duty to his employers, they will become, after a while, something more than a mere gang of laborers. They will come to see that if they perform their work efficiently they have a leader who is their friend and who is looking out for their interests. The maximum in operating efficiency can be accomplished by giving every man in the organization a chance to rise on the basis of his performance of an allotted task in less time and at a smaller cost than the standard set for such performance.

It is natural that the movement should be upward. The efficient laborer testifies to the efficiency of his boss, the efficiency of the skilled workman to the proper planning and allotment of his task by the shop foreman, the efficiency of a factory organization as a whole is outstanding evidence of a competent superintendent, and in the final analysis the success of a corporation testifies to the ability of its president.

But if success is to be continuous and cumulatively greater from year to year, there must be

a free and progressive human movement ever upward within the whole organization.

There exists in this country an outstanding illustration of this idea. A certain division of a large corporation in 1920 and 1921 operated at a loss. The factory was old in part, and the machinery modern only in sections. Costs were necessarily high. A new general manager of this division was appointed and he set to work to produce profits. He was an enthusiastic young man who possessed gratitude and admiration for his employers and at the same time a genuine affection for the men of his organization, some two thousand or more. He valued the efficiency of machinery, but he valued the efficiency of human beings more. Now the heads of departments in his organization were not efficient, being possessed of no particular ambition—just men who worked along day after day.

He went to the universities in his vicinity where technical schools were established and had a heart to heart talk with the several deans. He told them he sought young men with first-class ability, "par shooters" he termed it. He did not want a second-rate man at any price. He told the deans that his plan was to take about six of these "par shooters" a year, give

them a living wage and start them in at the bottom with nothing to prevent their climbing through the roof of the business if they possessed the intellect and the will.

The procession began. As these young men advanced they pushed inefficient men out of the enterprise and efficient superiors into higher positions. It will be appreciated that in a division of the magnitude of this particular one, there was much to learn and progress was slow. Red ink gave place to black ink in 1923, and the profits in part were used for the purchase of new machinery. In 1925 the young and enthusiastic general manager was pushed out of the division into a vice-presidency of the parent organization. He was succeeded by his assistant. In 1926 this new general manager was promoted to the general managership of a much larger division, and an assistant took his place. The latter is still there. He is particularly competent, but his days as general manager are short. There are many eyes on him. This division is now considered an incubator for producing general managers and operating vice-presidents.

Every phase of scientific administration is employed in this division. It is questionable if there exists in this country an industrial enterprise earning a larger annual return upon its

invested capital. The old original plant of 1920 is hidden away in a mass of new factories. The number of employees has increased sixfold or more.

Every burden center of this division is a cost center, and there is a bright young man in charge of each particular center studying, contriving, devising, and inventing ways to beat his percentage of the divisional sales dollar.

It is not possible to think of this enterprise as merely a phenomenon one observes in studying efficiency in management, for it is a living thing, a thing of movement in which youth and vitality and ambition and comradeship move ever upwards and outwards towards greater accomplishments.

And yet there is nothing exceptional in this case. The product is essentially the same product as in 1920, but greatly improved. The old factories of 1920 and the old machinery are still vivid memories. The "par shooters" simply constituted an original idea conceived by one enthusiastic young man who believed in himself and knew there were plenty more young men fully as clever as himself. Deans of technical schools are being solicited to-day by various enterprises for bright young men. The question is, are these young men given that vision of the

sky as the limit that was given to the "par shooters"? Let it be hoped that they are.

Management is everything in business for the simple reason that management embraces everything and must control everything in the organization system.

Ignorant management—Bourbon management will probably describe it more accurately—is really a pitiable thing to observe in these days of applied art and science in business. The stockholders of corporations so managed appear so helpless and so utterly wretched as dividends are discontinued and the market prices of their shares fall constantly. They cry aloud "What on earth is the matter with the industry?" Just as if the whole industry were to blame.

An industry is seldom at fault. Economic conditions change and industries are continually in a state of flux, adapting themselves to these changes.

Bourbon management, ostrich "head-in-the-sand" management—that is the trouble.

An executive of this type generally is secretive, believing that the less his organization knows about corporate policy and operating results, the better. He sits up aloft silent and looking wise. His subordinates are in fear of him. They do not understand him and consequently have

little confidence in him. He makes decisions without consulting his directors and in time becomes proficient in explaining mistakes in policy. If anything goes wrong, it has happened before the directors know about it. He delights in passing out to them at meetings of the board the most meager information. The inquisitive director is his enemy. He lacks the ability to explain his plans to his subordinates and to elicit their coöperation and advice. It is impossible for him to conceive that the young black-haired, bright-eyed head of a department to whom he nods casually now and then possesses exceptional potentialities of undeveloped ability if only he were cultivated and made a friend. He does not realize that human nature is forever the same, responding with enthusiasm and loyalty to confidence and friendliness, and reacting with stubborn resistance, carelessness, and insubordination to an authority which is not sympathetic or cordial. In brief, such a Bourbon executive, not possessing the ability to inspire coöperation in his organization or the broad-mindedness to evaluate properly all the elements entering into a decision, makes many stupid and costly mistakes. He is a menace to bankers and investors. His competitors distrust him. He is an industrial and a commercial evil

and should be appraised properly by the business community.

The acid test of an executive is his ability to produce profits. Stockholders of corporations have only themselves to blame if they continue to elect an incompetent management year after year. They too have a responsibility that extends well beyond the borders of their personal interests. They are possessed of the power to choose and elect directors who in turn select the executive management. Stockholders and directors are accountable to public opinion for the intelligent, honest, and efficient exercise of this power and specifically to the salaried employees and wage earners of the corporation.

Labor, as represented by these two groups, has the right to expect competent direction, to be physically safeguarded by sanitary and safety appliances, and to receive payment for its services consistent with its ability to perform and in line with the current cost of living. If management is incompetent and as a result labor is not treated fairly either physically or financially, it has a grievance against such management as direct and as important as that of the stockholders and in addition an equal grievance against both directors and stockholders for employing and retaining inefficient management.

Labor has a shrewd and comprehensive opinion of what constitutes good executive management. Stockholders should arouse themselves and analyze their management organization whenever a declining earning ratio is evidenced. A management is engaged to produce profits. If it fails to do this and continues to repeat in the red, the stockholders should get new management, having learned why the old management went sour. Stockholders of corporations in this country have only themselves to blame if they continue to elect an incompetent management year after year. Standards of present excellent performance are visible and intelligible, not only to labor but to all who care to observe and study.

It is not an act of God that causes the prosperity of General Motors Corporation and every one connected with it, but good management, a management with a definite corporate policy, definitely followed.

Incompetency in management is not as serious from a moral standpoint as dishonesty, but fully as grave a danger for the owners of the property and the labor employed.

There can be an excellent management which never heard of production planning or budgetary control, but did one ever hear of an excellent management which did not understand and

employ the principles of coördination, which did not know its markets, merchandise its products to meet the consumer requirements of its markets, distribute its products economically, and so plan its production as to balance it as nearly as possible with sales?

It is sometimes said that if one were requested to diagnose quickly an industrial enterprise he would inform himself on three essential particulars: (1) Character of management, (2) efficiency of plant and machinery, (3) quality and marketability of products.

It is even stated that when the condition of each of these primary principles is excellent, or even good, a print cloth mill in New England possessing them *can* operate at a profit and a bituminous coal property, similarly fortunate, *can be* made to pay.

The three, however, must be present and united to insure success. Even an excellent management with poor tools to work with will find it difficult to meet competition just as many a well-equipped plant and a superior product are rendered impotent by bad management.

However, as the result of a study of management over a great many years, it is the conviction of the writer that a really first-class management cannot be defeated in this country. The records

of successful reorganization and reconstruction prove the correctness of this opinion. A resourceful executive is not intimidated by any problem, no matter how difficult.

About three years ago the president of a prominent cotton goods commission house, representing several large mills in the North as selling agent, recognized that something was radically wrong with the flow of the textile stream of distribution. The toll privileges of the commission house and the jobber were no longer proving profitable and he inquired of himself, there being no one else to interrogate, "What must I do to save myself from elimination?" He was a wise man and he knew that new economic conditions had taken control of the distribution of textile products.

He analyzed these conditions exhaustively and convinced himself that, if he would coördinate his commission business with the producing mill and the markets for its products, he could prevent elimination and make his commission house an essential agent, not only of distribution, but of production. This entailed making a study of markets, adapting the merchandise of the mills he represented in quality, style, and preparation to market requirements, passing on the knowledge so gained to the mills, and insisting

that sales and production be maintained in balance.

When this man began to think specifically of the new economic conditions he assumed a position three years ahead of most of his competitors. He has been able to maintain this advantage to the present time. It was not without tremendous and concentrated effort that he was able to bring both his mills and his distributors into line with his advanced ideas and effect coördination, but the result was worth while. He believes that prospects are good for the New England textile manufacturer if his plant is efficiently equipped and his product properly merchandised and marketed.

This particular executive is engaged tirelessly in leading his organization and his associates in production and distribution along the new balanced and coördinated way and in teaching them the principles of science in business. In consequence, he has their loyal and enthusiastic support.

And he is only one man in a constantly expanding army of chief executives who are establishing American industry on a sound economic basis. These efficient, hard-working men are the best friends of investors and, above all, of labor.

There is no merit in science and art unless the motive force to apply them exists in the human intellect.

The relative importance of management in the industrial and commercial structure cannot be overstressed in a discussion of business economics. It is the brain and motor of business.

The concluding words of this chapter are best expressed in the following quotation from a letter recently received from the managing director of a corporation specializing in the elimination of waste in industry:

“Regarding the matter of an executive requiring a superior order of intelligence to understand and appreciate work such as we are doing, this has been so and still is to some extent. On the other hand, a newer type of executives is coming into industry, who are viewing a business as an entity instead of from the standpoint simply of manufacturing, or selling, or finance, and are therefore quick to spot weakness in any department.

“The engineer and economist are coming into the industrial picture more and more, due to business complexities—if not precariousness in certain lines. Why should

this not be so? Profit margins are less than they should be; about one half of those engaged in industry earn profits and of those that do only a small proportion earn what can be classed as adequate.

"The task of making profit a constant instead of a variable is only beginning to receive the consideration it is entitled to. In industry we have a scientific development, in the hands of able men, called 'Production Planning' without which our mass production would be impossible. *Equally as important is the matter of 'Profit Planning'—the determination of what the business should earn and then finding ways and means for assuring the retention of a sufficient number of cents per dollar of sales, to equal a proper return on the investment.*"

Chapter Nine

RESEARCH

RESEARCH is the pursuit of pure knowledge, the attempt to discover in the objective world ideas that are not within ourselves, facts which we realize we do not possess. It is, perhaps, the highest and most profound form of thought.

The man of research must project his thoughts into the outer world, not knowing what the result will be; he must let them play about until they find an objective idea on which to settle and concentrate. The result will be, in due order, conception of the idea, analysis of it, contemplation of it, valuation of it, and finally utilization of it, if found worthy of retention in the mind.

Ideas are the objectives of thought. It is well carefully to consider this statement. Ideas must be pursued and captured before they can be assimilated into conceptions. It is not possible to pick them from the trees as ripe fruit. Nothing which exists is of a more fugitive nature.

Nevertheless, they do exist and it is the object of research to discover them.

There is still the type of business man who sits satisfied, saying to himself: "I know of my own intuition when and what to buy and when, where, and what to sell; I can visualize the future owing to my past experience; I believe in the law of cycles; I know that what goes up must come down; I believe subjective thought is more practical than objective thought; research is a chasing of unrealities, and I shall have nothing to do with it." He may be a shrewd trader, but he will never become a great merchant.

The accumulated evidence is all against that man.

Research is the most advanced method of acquiring an understanding of previously unknown things and of forcing a revelation of the suspected secrets of only fairly well-known things.

Unsolicited perceptions come to the brain through the agencies of the senses, especially sight. Research initiates its own perceptions.

Research comprehends (a) pure research in which neither the problem nor the answer is known and (b) applied research in which the problem is known but the answer is unknown.

Pure research is speculative, while applied research is distinctly practical.

In discussing research in connection with industrial and commercial matters, reference is made almost wholly to applied research. Nevertheless, there is no form of investigation into which pure research does not enter in its intangible way, inspiring the thinker and lifting him up into the sphere of imaginable probabilities.

Mr. Edison and Madame Curie in their respective laboratories, experimenting, testing, and wondering about this and that potential electrical or chemical agent, are notable illustrations of pure research.

The following is a simple example of applied research:

An operating coal company has a mine of low volatile bituminous coal, high in B. T. U's., which in mining and screening yields only forty per cent size coal, the remaining sixty per cent degrading into fine slack. The size coal is quickly salable at a fair price. The slack coal, equal in intrinsic quality to the size coal, cannot be sold at a price sufficient to make the average mine price such as to produce a profit. This mine represents a large capital investment. The problem confronting its owners is to discover a

practical way of treating the slack coal so that it shall become profitably marketable.

In this case the problem is known, while the answer is unknown. The investigator must first inform himself as to market probabilities for the utilization of slack coal in some form, such as briquettes or even as transformed at the mine into gas or electrical energy.

It is evident, even to a novice, that many ways exist for the utilization of this splendid power-producing coal, but the question for research to answer is how to transform it profitably. That is a full-sized man's job.

The ordinary practical American business man does not possess the essential intellectual qualifications which are required by either form of research. A special type of inquiring mind is necessary for such work. The man of research does not hurry and cannot be speeded up.

The business man is primarily a doer. The man of research is fundamentally a thinker.

In Continental Europe research, along every avenue of human thought, has been efficiently organized for many years, but it is only since the war that the United States has assumed a commanding position in research endeavor, being now second only to Germany in this respect. The National Research Council in 1921 reported

578 industrial research laboratories. There are now said to be fully a thousand such laboratories in this country and it is reported that the American people are spending two hundred million dollars a year on research, that thirty thousand workers in applied science are engaged in bringing the resources of science to the solution of technical problems arising in industry, and that fifteen million dollars annually is being spent in coöperative research by trade associations alone, seventy of which are engaged in research activities.

We are further informed by the director of the National Research Council that "the Universities and technical colleges in 1926 had a total appropriation of about one and a quarter million dollars for applied and industrial research. The United States Government, through its technical bureaus, has approximately one thousand research projects under way in coöperation with other technical bodies. For one dollar being spent by Federal Government appropriations for research, industry is spending two dollars. Practically every field of industrial activity in this country is covered by some research organization. The National Research Council, with twelve divisions in the fields of natural science, engineering and industry, acts as a national clearing

house for research activities and a center for research information." He adds significantly, "the day when the independent inventor contributed revolutionary ideas in industrial technology is past. The struggling American genius is vanishing in the face of the competition of organized research."

Scientific administration, in its scope, embraces research in practically all its forms.

It employs engineering, chemical, economic, and statistical research in manufacturing, analyzing every phase of production procedure in order to effect the most economical utilization of plant facilities and to contrive a plant layout that shall be most effective. Power costs are studied. New methods are devised for extracting heat from coal at the lowest cost. Research has developed that an economy can be effected in the use of larger power-producing units and this has tended to a concentration of power-producing facilities in central power plants.

Research has accelerated the movement of production through the factory by devising multiple operating machines, almost human in character, and in the employment of conveyor systems, at the same time effecting a remarkable saving in labor cost.

The application of labor in production has

been studied with the utmost patience and thoroughness, resulting in a greater labor efficiency at a less cost and with an increased wage. Wages were never so high in this country as they are to-day, and workmen were never more efficient. This is a tribute to industrial research. In fact, industrial research has concentrated a searching inquiry upon labor in relation to production and profit. It has arrived at what appears to be a fairly satisfactory solution of this vexing problem, evidenced, on the one hand, by the general contentment of labor and, on the other hand, by the tremendous and widespread purchasing power of labor.

Industrial research is by nature exceedingly practical. It devotes itself intensively to the work in hand, the designated inquiry. But by nature research is akin to genius, and there is no law of God or man which can keep it now and then from wandering afield and focusing its attention, for example, on some such intangible thing as noise. A motor car is noisy. Why is it noisy? What is the source of noise in an automobile? If vibration, what can be done to eliminate it?

Vibration is researched. It is laid on the operating table and its case diagnosed. Tools, delicate and exact as human ingenuity can make

them, are too clumsy to measure the more extended vibratory waves, so waves of light are employed as standards of measurement, and then a machine is constructed to employ the light waves to measure the waves of sound, to locate their high points and their low points. Such a machine is now simply another tool in certain automobile factories.

Carpets have from time out of mind been woven on a loom. Research, wandering in the industrial field, beholds a carpet, examines it, sees that it is a woven fabric and inquires why woven? Could it not be produced cheaper if the wool did not have to be spun and twisted, beamed and woven? Why could not some simpler and cheaper way be devised for making a carpet, thus eliminating the necessity of much expensive machinery?

Such a way is discovered by simply vulcanizing the wool or hair fibers upon a coarse cotton fabric as a base and sheering the pile at the height desired. The amateur, on seeing such a carpet for the first time, feeling it or walking upon it, would not suspect that what he beheld, felt, and trod upon was not a woven carpet.

In 1710 the French scientist Réaumur wrote an article called "An Examination of the Silk of Spiders." He had observed the silkworm chew-

ing mulberry leaves and through a digestive process converting the pulp into a fine filament which, when twisted with many other similar filaments, became a thread which could be woven into that most beautiful fabric known as silk.

He thought about spiders also, saw them spin their intricate webs, and wondered why a human being could not become as clever a spinner as the silkworm and the spider. As he put it, "Silk being nothing but dried-up liquid gum, why cannot we make silk with gum and resin?"

This is an excellent example of pure research.

Réaumur beheld something going on in the objective world which caused him to think. Out of his thought were built ideas, and then came practical suggestions, resulting in a new filament as glossy as silk at less than a quarter of the cost.

Early in the present century the new silk fiber, or artificial silk, as it was called, entered the domain of trade and claimed a prominent position therein.

This product is now called "rayon." It is not silk at all, being simply a filament of chemically treated wood pulp. In 1922 the consumption of this new fiber was 2,700,000 pounds. In 1927 the consumption was around 90,000,000 pounds.

Rayon and its sister, celanese, are knocking

at the door of all markets where wool and silk and cotton have been considered for so many centuries as the exclusive textile fibers.

The mineral separation process through oil flotation is an example of pure discovery as opposed to pure research. The eye saw it—it was not conceived by the mind until after detection by the eye.

A miner's wife is said to have noticed particles of silver and gold floating on the crest of the bubbles in her washtub when she was washing the bags used by her husband in the collection of ore samples. At the time she was not wondering about unknown things and it was not difficult for her to arrive at the conception that greasy bubbles, when violently agitated, would pick up fine mineral particles.

This interesting story is disputed, but some human being first saw particles of bright minerals floating on bubbles arising from greasy water in commotion, and the miner's wife has a better claim to being that original person than any one else.

In any event, the oil flotation process when applied commercially has revolutionized the mining industry. It has made possible the recovery of metals from slimes which formerly ran to waste and is now being employed as an active

and most efficient agent in the recovery of metals from ore, superseding in great part the recovery work accomplished by vibration tables.

Industrial research is the enemy of waste. Like an eagle soaring in the sky, it keeps its keen eyes on things below. When it detects weakness, helplessness, or inefficiency it descends upon it like an inspired vengeance.

Waste excites research to a pronounced activity. Old automobile tires and tubes, ancient rubber boots, worn-out rubber belting lying about in scrap heaps, cluttering the roadside, all an abomination and a desecration, stimulated research. The result is evidenced by great rubber reclaiming factories, literally producing life out of apparent death, for modern reclaimed rubber has a tensile strength and wearing qualities which are quite astonishing.

There was a crude rubber problem a year or so ago. It was anticipated that the production and consumption of crude rubber would equal each other in 1928 and with the rubber industry growing by leaps and bounds, while the production of rubber increased only in moderation, a shortage would occur resulting in all kinds of industrial trouble.

Research solved the problem so unostentatiously that few people came to a realization of

the fact until crude rubber reached a price in excess of one dollar a pound. Then some innocent soul casually remarked "What's the matter with reclaimed rubber as a substitute?" The result is well known.

Merchandising research has developed contemporaneously with industrial research. Its progress has not been so spectacular, but none the less it has been interesting.

As a result of the great war, prices to consumers became so high that they were compelled by necessity to buy from hand to mouth. Moreover, as a class they were incensed at prices which were so exorbitant as compared with prewar prices. So they went on a buyer's strike. They discovered that hand-to-mouth purchasing was good economic practice and that they could get along very well without spending so much money for clothes, food, and other previously called necessities, especially because the automobile had changed their viewpoint of life.

Producers and distributors of merchandise did not like the consumer attitude. They talked a great deal about it on the street and discussed it in the newspapers. Celebrated economists made many eloquent speeches in connection with it. Nevertheless, hand-to-mouth buying continued as a fundamental of consumer purchasing policy

and so remains at the present time. The buyer's strike dwindled out in a few years but never wholly disappeared, as many producers can testify.

The retailer naturally was the first to match hand-to-mouth consumer buying by limiting his own purchases from manufacturers and jobbers. Jobbers in turn found that they were unable to minimize forward commitments with manufacturers, and so the backing-up process continued to the raw material producers.

The problem of merchandising was to adapt itself to the new conditions and outgeneral consumers if possible. In order to accomplish the latter it was found necessary to study consumer psychology and through applied analyzation reduce the number of types, styles, and grades of the several commodity lines. Research was the agency employed to gather the facts on which to base the final decision.

It was discovered that hand-to-mouth buying necessitated frequent style changes, that mutation was the shibboleth of the day, that no form or aspect of anything could be considered a standard type for long. As in a stereoscope, the patterns and colors changed with every shake of the instrument. The ocean liner, the skyscraper, the machine, the agricultural implement, dry

goods, groceries, boots and shoes, even painting and sculpture, all became subject to the consumer demand for a new thing each new season.

Only a minor few of those engaged in merchandising visualized the situation in a comprehensive way, but those few went to work not only to meet conditions, but to control them. They decided that they would not wait for change in design and style to be thrust in their faces. They would originate design and style and they would play upon consumer susceptibilities, cajole consumers, stimulate consumers, enticing them to the very limit of their capacity to purchase.

They could imagine what they desired, but they could not accomplish their desires without going out into the world of ideas, that world beyond themselves, searching and researching for new styles and new designs and new types of things with which to attract consumer demand.

In their wanderings abroad, they came upon the tombs of kings, dead four thousand years, and made marvelous discoveries in style and design. They pondered beside the temple ruins of ancient Assyria and conceived new forms of architecture that would render cities beautiful. They listened to farmers talk in the fields and devised new implements which would meet their

needs. They explored the ways of competition, beheld its absurdities, and became conscious of its ignorant practices. They saw where this article should be standardized as to quality, form, and weight, and learned why another article should always remain subject to change.

Such merchandisers of fabrics, of buildings, of machinery, of automobiles, of all kinds of commercial things, have accomplished more than they anticipated. They are the pioneers of merchandising research and deserve the reward which has come to them.

No writer will ever be able to relate exactly what they learned or how they made their knowledge effective. Balance sheets show only the results.

No man can be a true explorer and follow in another man's footsteps and no man can do research work along a cut and dried line of investigation.

If what has been said so far in relation to research conveys any import it is this, that only certain elemental suggestions can be made to the executive of any business in respect to research, for research is original work, primarily original thinking, original investigation, and how can any one be instructed to do an original thing? One can describe the accomplishments of

research much as he can describe the beneficial results of a religious life, but every man must save his own soul.

Much that might have been said in relation to sales research has been touched upon in the discussion of merchandising research. The primary accomplishment of sales research is to paint a truthful picture of consumer capacity, consumer markets, consumer characteristics, habits, and customs, consumer reaction to price changes, and all the countless consumer influences so that the producer, manufacturer, or distributor may know accurately how to deal with this multiple man. He must know him just as thoroughly as John Jones knows how to trade with Henry Smith whom he has known intimately as a neighbor and a friend for many years.

The study of mass psychology is a function of sales research. The instincts of the group are still powerful influences. The composite opinion of a community has as much value in trade as in politics or religion. To sway public opinion, perhaps to control it, that is the grand prize in business. It is worth making a painstaking effort to win this prize.

It is quite remarkable how much the average manufacturer dislikes to undertake personally the intimate study of his markets and his cus-

tomers. He may be willing to admit that sales research and market study are essential to success in these highly competitive times when market conditions are changing so rapidly, but he prefers hiring some one to do this job for him. He seems rooted in the office at his mill. It is so comfortable there. Every one obeys him there. He likes to pass personally upon the purchase of raw material and factory supplies. He enjoys going over the daily reports of the several department heads. He loves to read the orders each morning and pass them over to the superintendent. He appreciates a friendly chat now and then with visiting bankers and others who are anxious to stand well with him. He delights in showing such people through his mills, noting the flattering remarks which are made as a fond parent notes the comments on his first-born. He has a New York sales office in charge of a sales manager and every now and then he feels it his duty to visit that city and learn what the buyers are talking about.

But to say good-bye to his wife and children and leave his comfortable home for perhaps a month or six weeks on a trip throughout the country, visiting jobbers, large retailers, or dealers who handle his products and talk to them man to man, is not to his liking. He will even

assert that it is bad business for him to make such a trip as it may cross wires with his sales department.

He may have heard the old revivalist saying, "The Kingdom of Heaven is never taken except by storm," but he does not believe that this wise remark has the least reference to trade or consumer markets. He seems wholly incapable of appreciating the fact that while this may not be the day of salvation, it is most decidedly the day of coöperation and coördination; and that in order to coöperate and effect coördination with the men who sell his products to consumers, either directly or indirectly, he must go where they live, visit them in their offices, inquire of them as to the success of their business, ask if he is doing all that reasonably can be required of him to assist in their success, discuss with them the design, quality, style, preparation of his merchandise and that of his competitors, go out to lunch with them, possibly take dinner with them at their homes, and before leaving get on a basis of friendly understanding with them. It stands to reason that the man who has the ultimate decision as to what shall be manufactured and offered for sale will act more intelligently if he has an intimate personal knowledge of his markets and the distributors of his products.

Sales research reports by trained investigators will furnish the manufacturer with much valuable information, but if he can, he should acquire at least a part of his knowledge at first hand.

Research undoubtedly is drawing the producer and the consumer closer together. A common understanding makes friends. It is quite possible that consumer purchasing capacity will be multiplied many times in future years, owing to the economies that are being effected in production and distribution. It is even probable that commodity prices in time will become standardized on the basis of a fair return on invested capital as is now in process of accomplishment in the public service and railway industries. This will tend largely to the elimination of the frightful waste in competition, waste of material, waste of capital, and waste of effort.

Chapter Ten

ANALYSIS

IMAGINATION is the inspiration of research; practicality is the keynote of analysis.

There exists in all human beings the instinctive curiosity to resolve a complex body into its parts so as to determine their relation to each other. The child destroys its mechanical toys that it may ascertain what makes the wheels go round. The youth with his first motor boat is never satisfied until he has disassembled his "one lungers," exhaustively examined the carburetor and the electric system and satisfied himself as to the duty of every part. He realizes that this is the only way by which he can arrive at an intimate knowledge of an internal combustion engine, and he will not consider himself an efficient operator of his little craft until he has so informed himself. The anatomist dismembers an animal body to gain comprehensive information as to its several diverse functions. The astronomer captures the rays of the sun in the solar spectrum and divides them into their chemical constituents.

Man knows he will never acquire true knowledge except through analysis. He realizes that compound phenomena are merely aggregations of atomic entities, and that the secrets of nature may be discovered only by an intimate acquaintance with her electrons and other microscopic forces.

Analyzing is the most fascinating of all practical mental pursuits. It possesses an alluring charm as haunting as that of research and even more tempting to the ordinary man because its raw materials are facts rather than ideas. One must possess the intellectual characteristics of a philosopher to excel in research. The analyst is best who is most hard-headed.

There is no principle of scientific administration which does not require the application of analysis. In market study it examines critically all the data gathered by research relating to consumer requirements. In merchandising it weighs quality, design, style, and preparation as against consumer desire, appreciation, taste, need, and ability to purchase. In similar scales, so delicate as to register the fourth decimal of an impression, it balances the merchandise line with sales results, revealing the popular and profitable products on the one hand and the slow-moving, unprofitable products on the other.

In distribution it demonstrates which are the economic channels to follow and which are the best sales methods to employ.

In production, however, it excels as a method of discovering excessive expenses and in the determination of trends. The manufacturer who has not employed analysis as a confidential adviser has neglected to take advantage of his opportunities.

It is the function of analysis to make involved and complex things simple and within the scope of ordinary understanding. A nation, such as the United States, is a highly complex body but most of its citizens have a fairly comprehensive understanding of the administration of government in a village or county.

It is necessary, therefore, in business, if a perfect comprehension of its activities is to be attained, that it be studied constantly through analyzation in unitary form.

Let us consider, as an illustration of the practical value of analysis, the case of an assumed manufacturing company which has not adapted its business to conform to modern marketing and distributing conditions and in consequence finds that it is losing seven cents on every dollar of goods it sells. Its management knows little if anything about the principles of scientific busi-

ness procedure. It realizes simply that something is wrong somewhere and engages a competent analyst to study its affairs and locate the trouble.

The analyst proceeds immediately to construct generalized operating statements covering the previous five-year period or longer, hoping to discover quickly through comparing these statements when and where the business of the company began to go wrong and to ascertain the effect of the varying annual sales volume upon the respective items of cost.

He contemplates the changes from year to year in the several comparative costs and notes if these differences are merely temporary or denote positive trends. In particular he compares the spread each year between total manufacturing cost and income from sales. If the former maintains a fairly constant ratio while the profit narrows or disappears, a loss taking its place, he realizes that the marketing, distribution, and administrative costs have become excessive. If, on the other hand, he finds these costs within reason while the manufacturing costs have materially increased, although the units of production have remained fairly constant, he knows that the products of the company have been incorrectly priced or sold at a sacrifice.

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He then sets up the operation statement of the last previous year and resolves it into an actual sales dollar and a projected sales dollar forced to show a break-even operation somewhat as follows:

NET SALES..... \$5,000,000

<i>Cost of Annual Sales</i>		<i>Actual Sales Dollar</i>	<i>Projected Possible Sales Dollar</i>
Material.....	\$1,906,700	38.134 cents	37.134 cents
Direct Labor.....	704,100	14.082 "	13.082 "
Indirect Labor.....	481,350	9.627 "	8.627 "
Variable Burden.....	532,200	10.644 "	9.644 "
Nonvariable Burden.....	463,250	9.265 "	8.273 "
Manufacturing Cost.....	\$4,087,600	81.752 "	76.760 "
Sales Expense.....	741,850	14.837 "	11.837 "
Advertising Expense.....	108,150	2.163 "	2.163 "
Administrative Expense.....	150,400	3.008 "	4. "
Interest.....	262,000	5.240 "	5.240 "
	\$5,350,000	107. "	100. "
Loss.....	350,000	7. "	
	\$5,000,000	100. "	100. "

As he contemplates this forced sales dollar, the analyst appreciates fully the difficulty of his task. He knows from experience that a manufacturing cost of 76.760 cents of each dollar of sales for a business of this nature is very low. He doubts seriously if it could be attained. The actual manufacturing cost for the year under review is not excessive. Time study and planned

production might reasonably be expected to reduce the direct labor cost one cent on each dollar of sales and possibly another cent could be gained in the item Nonvariable Burden. Power costs are generally not given the attention they deserve in the ordinary factory. Wastes here and there might be eliminated.

Then his eyes focus attentively upon the item "sales expense." That is where the trouble lies, and he knows it. This particular business cannot afford an expense of 11.837 cents of each dollar of sales to cover direct selling cost and the cost of advertising. Either a new system of marketing and distributing the products of the company must be devised or the word "morbund" must be written in capital letters across the face of the operating statement.

He proceeds, therefore, to study the marketing methods employed by the company and by successful competing companies. He studies also the products of the company, analyzes them, sorts them, observes them from every angle, and discusses them exhaustively with the management organization.

Having accumulated all the knowledge in relation to the case, which can be ascertained in the time at his disposal, he returns to his forced

sales dollar and recasts it in the light of what he has learned.

Let us suppose that he had ascertained that the selling prices of the company's products were five per cent under those of successful competitors. Here is a hope. He has discovered that sales volume can be increased a million dollars a year with little if any sales cost, by selling a definite portion of the product to mail order houses and chain stores, channels of distribution that had been entirely neglected.

He finds finally that on a basis of \$6,000,000 sales a year of products properly designed, styled, prepared, and marketed, a potential profit of at least five per cent on invested capital might be realized under good management exercising a watchful control of expenses.

His answer to his employer, consequently, is "Yes, the company is worth saving if you can find the proper man to manage it."

It is outstanding in this simple illustration that analysis is accompanied always by thought of an intense contemplative nature and by initiative. The subject is thought through, and then action is demanded.

There is an old saying, "It is the little foxes which destroy the vines." Business analysis discovers and examines critically the minor

items of expense, ascertains which are essential, and eliminates those which are unnecessary.

The analyzation of markets and of products in relation to their market adaptability is probably the most interesting form of commercial investigation.

Some years ago when the farm tractor was invented and produced for general distribution, many manufacturers of agricultural machinery thought fortune had smiled upon and blessed them. For the first three years they could not make tractors fast enough to supply the demand. They built immense new factories equipped with the latest form of machinery and conveyor systems to produce tractors in quantity. Distributing agencies were established throughout this country, in Canada, South America, and Europe. Farmers were urged to purchase tractors and advised to mortgage their farms to pay for them. Sales arguments were alluring and, fascinated by the possibilities of profit and less arduous toil for man and beast which lay in the iron horse, farmers bought them eagerly. It was the general impression that the tractor heralded a new age in which the farmer was to be a super-mechanic and his wife the engineer of a mechanical kitchen. An agricultural Utopia was a near prospect.

Then came calamity. Farmers could not pay for the tractors they had purchased. Bankers refused to finance tractor paper. Tractor factories shut down—certain of them were placed in receivers' hands.

Everybody inquired eagerly, "What is the matter with the tractor business?"

Market research was made by interested bankers, research after the fact, investigation of the stable after the horse had been stolen.

This investigation developed simply enough that the tractor was far from mechanical perfection, that a tractor designed to break the virgin soil of the Canadian prairies was not an economical means of plowing in Kansas, Iowa, or Texas, that it was not a profitable machine for the average farmer to use, and in short, that it must be regarded as a special form of power to be employed for a specific purpose under definite specific conditions. Therefore, it was not adapted to universal use and distribution.

Several years after this primary tractor debacle, a prominent automobile manufacturer decided to build and sell on a mass production and mass distribution basis a tractor for universal purposes. He told the writer his vision of the future of the farm tractor while gigantic factories were in course of construction to manufacture it. He

was asked if he had researched the farming districts of the United States and Canada from Dallas, Texas, to Edmonton, Alberta, and related his plant and his tractor to farmer capacity to purchase and tractor requirements in the several markets. He smiled genially and intimated that he had entire confidence in his plans. No additional knowledge was required to assure him of the broad demand which existed for a universal farm tractor, such as he proposed to produce. Nevertheless, tractors were never made at a profit in the great factories he constructed and their manufacture was discontinued entirely after a few years.

The law of economics requires that a farm tractor should pay for itself and produce a profit within the period of its natural life. The law of nature says a farm tractor must be adapted to the soil on which it is employed.

An analysis of all the facts in the case after research would have saved his corporation and other tractor manufacturers, investors, and farmers many millions of dollars. It is to be regretted that governmental analytical and research activities are initiated in many instances after an event rather than in anticipation of it.

It has always been so, but let us be optimistic and hope that it will not always be so, that men

will prefer to build factories and purchase machinery before they ascertain the market need of those factories and machines.

One of the largest department stores in this country recently decided to analyze its crockery department. It found that it was attempting to sell one hundred different styles of breakfast, luncheon, and dinner sets. The study demonstrated that only ten styles were turning on the basis required by the store's standard of profit, and in consequence the line was cut to the ten styles ascertained to be profitable. Since then a greater volume has been done with the corresponding profit on the ten styles than on the hundred styles.

This department store about the same time conceived the idea that it would analyze its furniture department. This study led to the inquiry, "Are we offering for sale such furniture as people want in their homes, or what the furniture manufacturers think they want?" It was discovered that the manufacturers had made no systematic study of consumer markets, so the store's research department undertook this task. Many facts were discovered. The buyers of this store now specify the design and style of their furniture requirements to the manufacturers,

and this particular department has attained an increased prosperity.

The manufacturer or merchant who keeps constantly in mind that his goal is net profits repeatedly analyzes his products, adding to each line new designs and styles and eliminating the slow-moving lines, if possible before they become excess merchandise. This is by no means a difficult task. Public taste is conservative and does not change quickly.

It does not always prove profitable to concentrate advertising and other forms of publicity on the new and untried products. The bulk of the average business is in the well-established staple lines. Analysis of sales in relation to publicity will reveal the facts in this connection.

The student of research and analysis becomes impressed with the basic business truths which they reveal. When he breaks down each product to its elementary lines, numbers, styles, etc., he sees that a general law governs each. Consumer needs become vital, reaching out like human hands for things they want, tremendously sensitive as to things they do not want, rejecting them instinctively. Manufacturers and merchants must inquire whether the things these consumer needs are feeling for are the goods they have to offer. They know that they can

no longer dictate. They may only suggest. Consumer needs will determine market conditions in their uncanny way. This seemingly blind groping for a closer contact as between buyer and seller is not a mere figure of speech, for undoubtedly business, regarded as a human activity, possesses a sense which, like the "sense of species" so ably described by Schopenhauer, seeks what is of benefit to itself and abhors whatever is futile. Under the direction of this sense business proceeds constantly toward a perfection of method. The limitation of time controls the duration of the individual and the corporation, even the nation, but business continues its existence through every age, persistently refining its unwritten laws.

Analysis is the agent which this business sense employs to discover waste motions, useless functions, obsolete tools and materials, extravagant methods and other decrepit things which from time to time fasten upon it like barnacles, retarding its evolutionary progress.

It is inspiring to think of business as possessed of an age-old intelligence, constantly developing and elaborating its art, and of research and analysis as the two sensory channels through which it receives its perceptions.

Chapter Eleven

CONCLUSION

THE development, expansion, and retention of consumer markets are the primary objectives of industry. The success along the lines of the great industrial and merchandising corporations which are employing research and analysis in every department of their organizations, which are tireless in their search for market knowledge, and which study distribution with the methodical and exact technique of the scientist, is confirmation of the wisdom of such procedure.

Just as that state is most prosperous whose several functions of social organization and government are coördinated by a wise executive policy, so is the industry most successful whose diverse units have been harmonized through the planning and forecasting of its operations along carefully thought-out lines.

Almost inevitably there comes to the executive responsible for such procedure the realization that his business is inextricably tied up with that of his fellow men. If he studies

his markets, relates his merchandising procedure to market requirements, distributes this merchandise in the most effective and economical manner, forecasts anticipated income, plans his operations so as to balance production with sales, and controls his operations as planned, he is bound to come to the conclusion that the prosperity of the nation is of the utmost importance to him and that much more is to be gained by coöperation than by playing a lone hand. For it is impossible to work out his plans unless he can secure the coöperation of his industrial associates.

The boot and shoe manufacturer, for example, who has planned his business along the lines outlined above, discovers that he has a host of relatives of various degrees of kinship such as the shoe machinery maker, the expert woodworker who makes lasts, the contractor and builder, the coal dealer, the public service corporation from which he purchases power, the wholesale merchant, the retail merchant, the ultimate consumer, the leather dealer, the tanner, the hide supplier, and a multitude of others, all concerned in his enterprise. Furthermore, the truth is borne in upon him that to plan accurately he not only must know what his competitors are planning to accomplish, but he must be

willing to assist in coördinating their activities with his if he would avoid a destructive competitive waste.

It will become clear to him that if every member of his industrial family secures a fair profit, every one will be satisfied from the boot and shoe wearer to the cattle man; every one, that is, who is not seeking an undue share and who is not jealous of his neighbor's prosperity. He will inevitably realize, moreover, that national prosperity exists only in the degree that individual units of industry are successful and that consumer capacity to purchase is measured by the prosperity of the human beings who constitute the national population, not the prosperity of the few but of the many.

As a practical man he arrives at the conclusion that his success as a boot and shoe manufacturer is dependent in degree upon the success not only of those units directly and indirectly connected with his business, but also upon that of the farmer, the miner, the lumberman, the cotton grower, and all classes of manufacturers, merchants, professional men, and wage earners.

He realizes that the only way to accomplish a permanent national prosperity is for every citizen of a country to assist in the flow of com-

mercial knowledge so that business planning can be accomplished and waste obviated.

He knows he is right in this conclusion because it is evident to every man that price competition, the result of greed and ignorance, is destructive of consumer purchasing capacity and consequently of national prosperity.

Unfair competition is an economic evil as detestable as any other form of vice. It is an evil which feeds upon itself, working to accomplish its own destruction as surely as that of the competitor it hopes to destroy.

The antidote is scientific knowledge based on acquired facts.

"Competition is the life of trade" only so far as it is fair and honest. It is good that men should strive and compete for success, just as it is good that wrestlers should compete fairly in a test of strength or runners in a test of speed. It is not good that a manufacturer or merchant should give a secret rebate to obtain business or sell merchandise below cost to ruin a competitor, just as it is unsportsmanlike for an athlete to take unfair advantage of his opponent.

The law denies the right to business men in this country to conspire together to influence prices to their special advantage. This is good ethics and sound common sense. The law

should frown as severely upon the unjustifiable reduction of prices for the manifest purpose of destroying the profits of competitors.

Business men who resort to such practices are like the buccaneers of former days who preyed upon commerce, leaving waste and desolation in their tracks. They are enemies to their associates in trade, enemies to productive labor because they waste the products of labor, enemies to the suppliers of raw materials because they realize no profit from the employment of these materials, enemies of the stockholders who have invested in their enterprises because they employ their capital without gain, and, above all, they are enemies to the development and extension of consumer markets; for profit is the food upon which the permanent extension of business lives.

As the thoughtful man travels the new way to net profits and explores its tributary byways, he becomes convinced that in order to attain an honorable success he must coöperate with his fellow travelers to the end that there shall be a coördination of thought and effort in the business of the nation, such as he hopes to effect in his individual enterprise. He will come to the realization that he will be most successful when the greatest number of his fellow men are successful.

Just as water must flow freely or become stale, so must there be an unrestricted flow of information as between consumers and producers throughout the entire stream of distribution. When this happy time comes (and its foundations have already been laid) this country will enjoy a broad and lasting prosperity. At least, that is the conclusion of this study in industrial economics.

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